COMMODORE user

INSIDE PULLOUT
Deals For Readers

Incorporating Vic Computing | Volume 1 Issue 6 | March 1984 | UK price 85p



No Fret for Fred on Pet

ROBOTS — here they come

Insure your micro

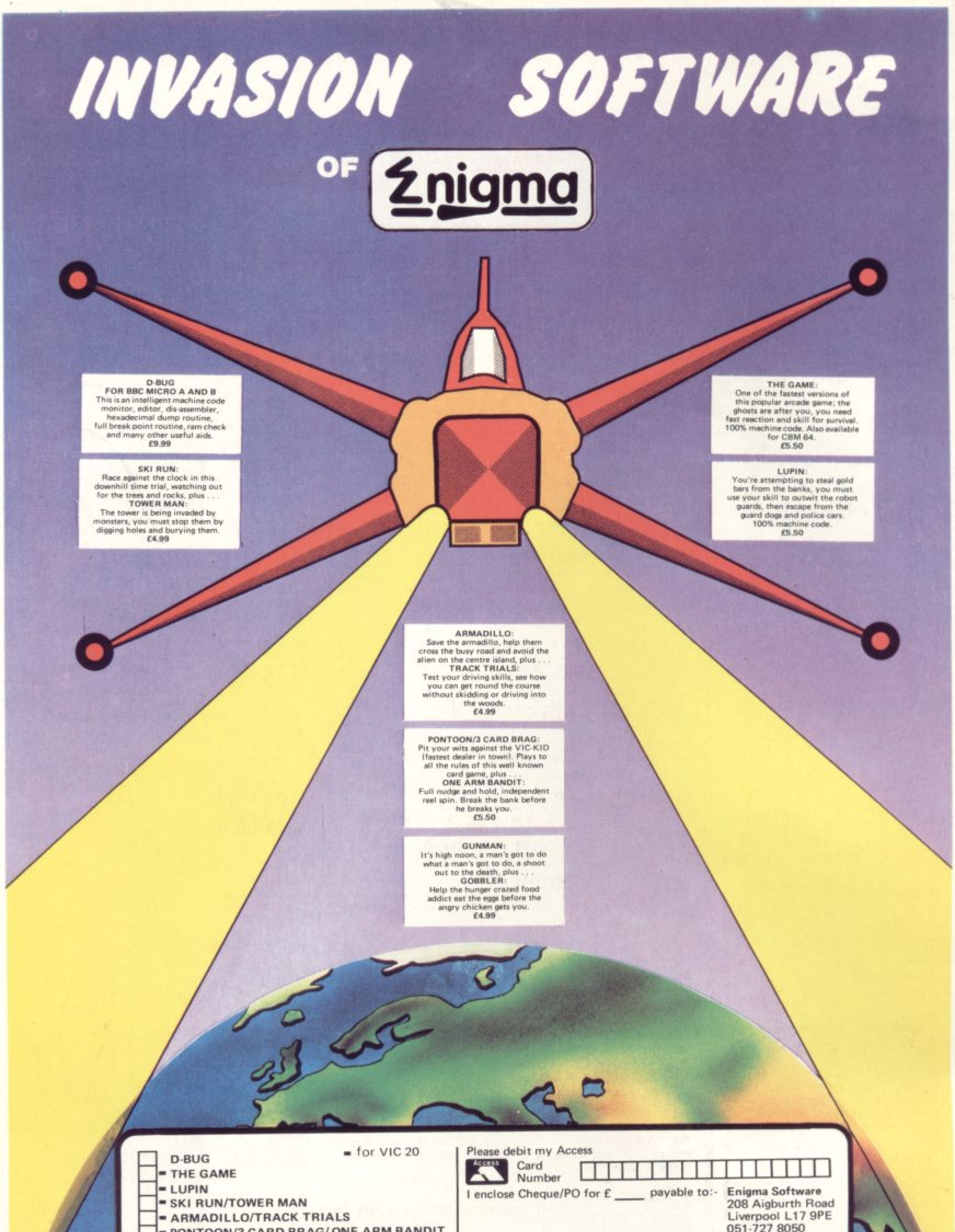
Lightpens seen

Deckhand: returns

Victuals

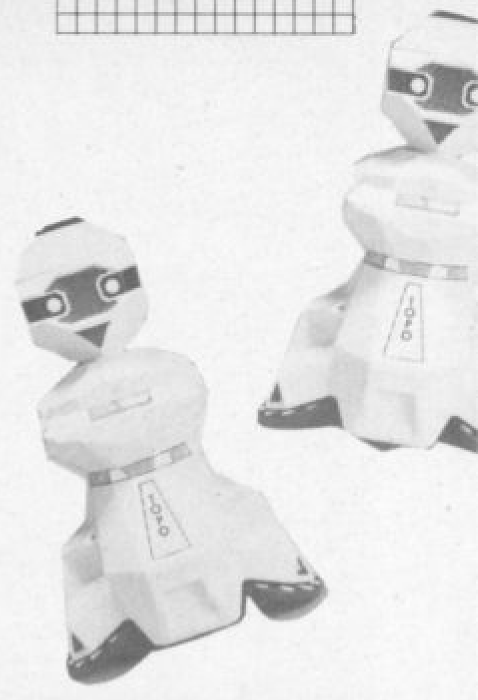
THE BIG ONE: £1,000 COMPETITION

Reviews: Paperclip, Word processing, Games, Gortek

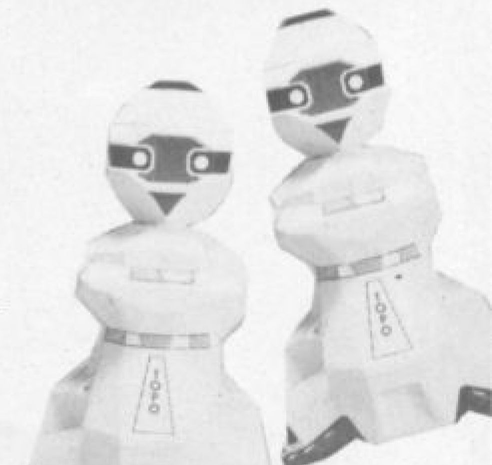


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Contents









People

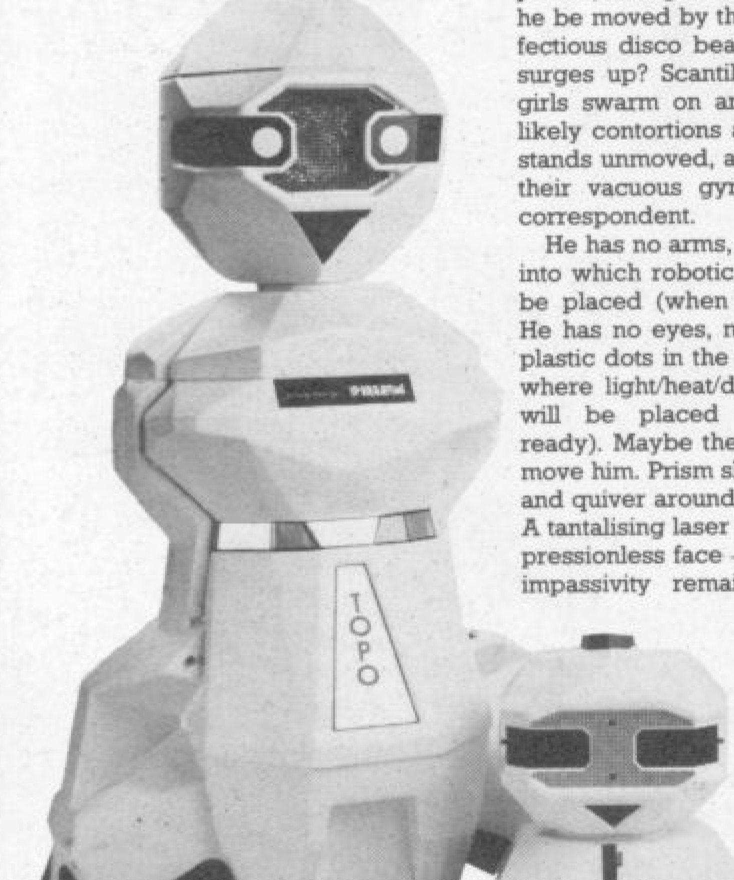
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Publisher's guarantee: There are no mistakes in this magazine except this one.

How not to fall off the table with your 64

"TOPO and FRED mark the arrival of the most exciting and practical development of silicon technology since the introduction of the personal computer", enthuses Prism's moustachioed development man, Graham Daubney. Prism? You know, the people making a fortune distributing software for the Spectrum. But who are TOPO and FRED? They're Androbots, of course.



Take your places, dim the lights for the wierdest most phantasmagorical show in town. It's 'Prism presents the Androbots' to the world. Well, not the *whole* world, just the world as represented by a mass of gawping dealers and press-people in London's newest, zaniest nightspot – the Hippodrome in Leicester Square. The man under the spot: William Woolard, famed for making science sound as easy as falling off a high-tech log. Lengthy panoramic oration, lots of video, megawatts of music and then ... throw off the covers, sound the fanfares – cue TOPO!

Woolard is a distinguished Tommorrow's World presenter; TOPO is distinguished by his wheels. TOPO stands alone on the dancefloor, a diminutive three feet of plastic, wiring and a few chips. Will he be moved by the pounding, infectious disco beat that suddenly surges up? Scantily-clad dancing girls swarm on and perform unlikely contortions around him. He stands unmoved, as impervious to their vacuous gyrations as your correspondent.

He has no arms, merely sockets into which robotic arms will soon be placed (when they're ready). He has no eyes, merely a pair of plastic dots in the inscrutible face where light/heat/distance sensors will be placed (when they're ready). Maybe the light-show will move him. Prism shapes float, dart and quiver around the dancefloor. A tantalising laser plays on his expressionless face – but his robotic impassivity remains intact. Did someone forget to put the batteries in?

Enter Bob Denton, Prism's MD. Will the force of his lofty position be able to move it? Yes, a pat on the head and he moves, he turns, he speaks (actually, there are some control buttons on the robotic cranium). He can be controlled by an infra-red link to a computer ... but he wasn't. He just trundled to the front of the stage.

Prism's press blurb announces that he can already speak and move; that he *will* be able to mow your lawn, do your hoovering, fetch and carry for invalides. But there's more: "it won't be long before an Androbot can mix you a drink (shaken, not stirred you fool) fetch your slippers and then perhaps settle down to a quiet evening's ironing" ... and all for a domestic £1,500.

Well, we'll have to take their word on that. Maybe FRED (a mere junior in the Androbot family) is more in your price-range. FRED stands just one foot high. He's also controlled by infra-red beams (but he wasn't) or a link to your home computer (but he wasn't). Ah, getting more interested now?

FRED's claim to stardom is that he can hold a pen. He can draw the patterns you've created on your computer screen. He can move around at five inches per second in a four foot area. He can say 45 words too. Back to the blurb: "FRED rolls through life on a heavy-duty wheel assembly, vigilantly watching his step with a set of downward-looking sensors. He's on the alert for the table edges he knows he should avoid ..." Get off the table, FRED!

FRED will adorn your home for £200 and become a bosom companion to your Commodore 64 – very soon. But how soon? Prism is 'presently implementing' a package for that very machine. What about the other Commodore home stalwart? Sorry, FRED and Vic won't be making friends.

Prism will be marketing TOPO and FRED through a national network of dealers. TOPO is promised to arrive during February; FRED is booked to make an appearance in April. So you can, according to the blurbspeak, "enjoy the fun of the future today" ... so what fun will we be enjoying in the future? Answers on a postcard. And turn in your grave, Doctor Who.

Prism Consumer Products is on 01-253 2277

Ask away: *CAP, one of Europe's leading information systems companies, has made what it calls "a strategic move" into the educational software market by buying a significant minority stake in Applied Systems Knowledge Ltd. ASK specialises in learning programs for schools and home-based micros, and has some good stuff for the Vic.*

CAP paid £100,000 for its 32 pere cent stake in ASK and has an option to increase its holding during the next five years ...

Number blunder: *Apologies to Darren Bird for getting the phone number of his Vic 20 Users Software Library wrong in our last issue. The number should have read: 0332 831457.*



Tape Tip: *The most common problem on any computer cassette unit is flattening of the rubber-covered pinch roller against the metal capstan. This happens when you leave it in PLAY mode for too long; and when the Vic or 64 has finished a SAVE or LOAD it just stops the cassette motor - with the pinch roller still pressed against the capstan. An out-of-shape pinch roller can cause some variation in speed, and that in turn may mean misreads and duff SAVEs. Moral: hit the STOP button when you've finished with the tape deck.*

Simons' Bug: *When printing out listings using Simons Basic, do not follow instructions in printer manual – instead type all printer commands on one line. For instance:*

OPEN 4,4: CMD4: LIST

To print more than one listing you have to ***close*** *all channels, switch the printer off then on again, and re-type the print instructions. If you don't use this procedure you'll get a line feed only on the printer ...*

Jolly Roger Dept: *Commodore's anti-piracy case against General Hardware, which sold an add-on that allows you to copy cartridges on to tape, has apparently ended in an out-of-court settlement. The bloke in question, Peter Goss, has got some freelance work from Commodore out of it. All of which is a bit of a shame, since the key legal point was therefore not settled: Goss argued that it wasn't him who was doing the pirating, it was his customers. Should the supplier have any responsibility for what the punters do – even if the product tends to encourage obviously illegal actions? The debate continues ...*



The HEROic alternative

Looks like 1984's going to be a bumper year for robots. Maplin Electronic Supplies has now acquired an ambulent piece of hardware called HERO, which is developed by Heathkit, an American firm.

Maplin itself is undertaking to interface HERO to "any popular home computer", according to its blurb. It's already succeeded with Atari and Spectrum machines but it looks like having a few problems with the Vic and Commodore 64. Their 'unusual' interface means that a fair amount of jigging around (converting to RS-232 and then to 8-bit parallel using a UART) will have to be done to get HERO to respond to commands. But don't be dismayed; HERO's price may dampen your enthusiasm a little.

An unassembled HERO will cost you £1,599, the idea being that putting it together teaches you about electronics (the fully-fashioned version costs £2,500).

HERO has speech and distance sensors, and Maplin hopes to develop a speech recognition capability for it. Controlling it can be done directly from the computer's keyboard using an infra-red or wire link. It can be used independently too, by storing programs in its memory. But it's primarily aimed at teaching programming and introductory robotics – definitely not a toy.

Maplin is on 0702 552911.

Poetry Corner: *A grafitti poem found in the University of Wisconsin's Computer Centre and quoted by Rex Malik in* ***Microcomputer Printout*** *magazine: "I am sick and tired of this machine/ I wish that they would sell it/ It seldom does what I want/ But only what I tell it."*

MCP, incidentally, is reportedly up for sale – which is a bit of a shame. It started life as the Pet-only Printout, broadened its scope into a good Fun-'n'-Fact mag, was sold to a big-deal publisher called Benn Brothers a year or two ago, and is now apparently on offer again to interested parties.

News



Hypermarket

Some friends coming round to dinner? Got to get some shopping done? No problem; pop down to your local SavaCentre hypermarket – it's open until 8pm. Trundle your trolley past the deli counter, past the tinned veg ... Oh look! A whole stack of Commodore SX-64s. Must get one of those.

Hypermarkets are supposedly full of bargains. No bargains here, though. SavaCentre's selling the machine for what it calls "a typical hypermarket price"; but in fact it's the going rate, £899.95. Ah well, put it in the trolley anyway. Now for the real shopping – if there's any more room in the trolley.

Apologies

In our January single-line competition results, we inadvertently printed one entry twice – thus depriving Filippo Pozzi of Voghera, Italy, of the due credit. Here's his winning entry: and as we said before, it's a good joke ...

```
198,1: POKE 6410 PRINT
"[CLR]PRESSF1TO...DREAM":
WAIT198,1: POKE 644,128:
SYS688
```

Two for the price: *Audiogenic, which has taken to calling itself "the leading independent Vic-20 and Commodore 64 software house in the UK", has launched some 'dual program cassettes' – one side of the cassette for Vic, the other for 64. Thus the same cassette satisfies both Vic and 64 users, with corresponding savings in cost". says Audiogenic magnanimously. Two cassettes have initially been launched: Cataclysm and Bonzo. We'll let you know what we think ...*

700 extended: *The latest from those clever people at JCL Software is a handy collection of utilities for the 700 (yes, the 700 is alive and well: and it is being shipped – we hear). The 700 WORKSHOP is a plug-in cartridge containing a whopping 120KB of goodies in ROM. The price is £120, for which you get some extensions to Basic; some toolkit functions for program development: aids for machine-code programming: and "the ability to run soft-loaded Basic of the user's design". Sounds good. JCL is on 0892 27454 ...*

64 talks to CBM: *Also from JCL is an IEEE 488 cartridge for the 64. Yet another gismo that lets the 64 use the Pet/700 line's disks, printers and other peripherals, Maybe, but this one isn't too expensive (£59) considering the extras you get with it. Like simple batch file operation, instant screen dumps (just press CTRL-P), 'autoboot' to load a program automatically ...*

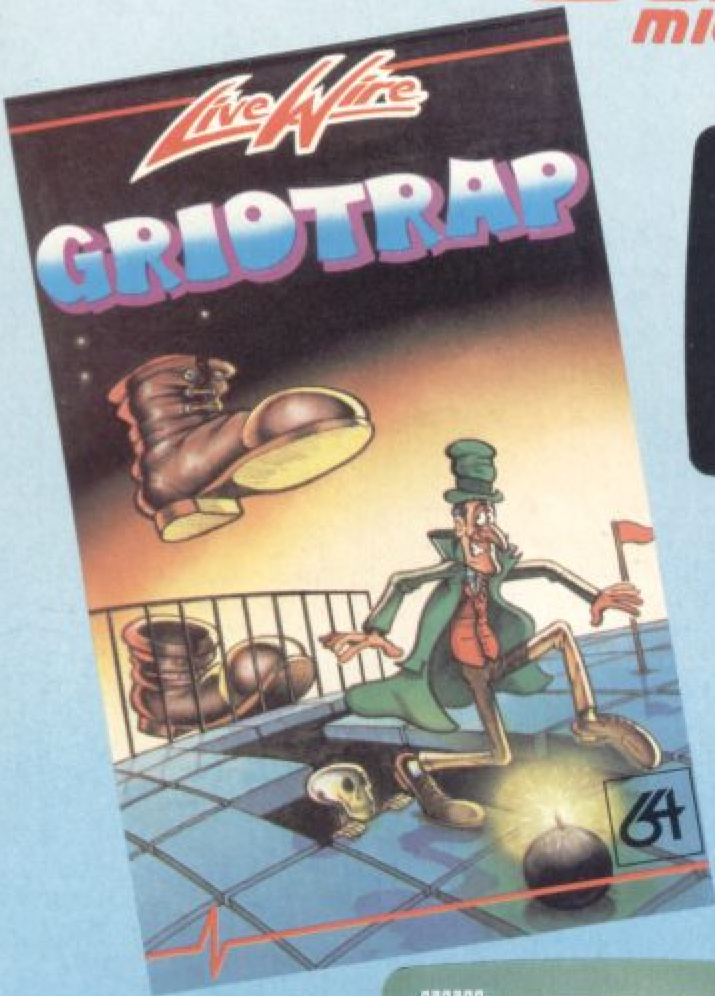
64 as Typewriter: *This neat trick comes from the Newsletter of VIC-UPS, the eager and active club in Western Australia. It lets you use a 64 and a printer as a typewriter – and it works!*

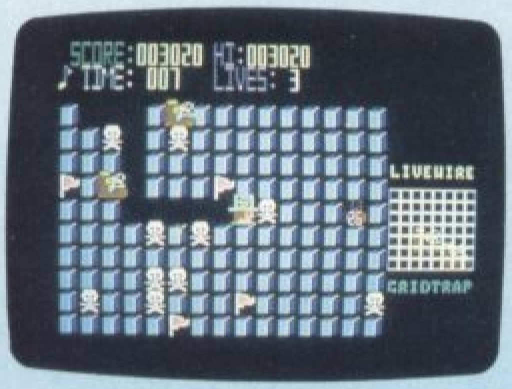
```
10 POKE 59468,12
20 OPEN 7,4,7: PRINT #7:
   CLOSE 7
30 OPEN 4,4
40 INPUT A$
50 IF A$="XXX" THEN PRINT
   #4: CLOSE 4: END
60 PRINT #4, A$
70 A$=" "
210 GOTO 170
```

To use it, LOAD the program and turn on the printer. Now RUN it: a question mark should appear. Simply type up to 76 characters on the screen. Press return – your line will be immediately printed. Another question mark appears, type another 76 characters. When you have finished type "XXX".

Warning: *If you type more than 77 characters they will not be printed.*

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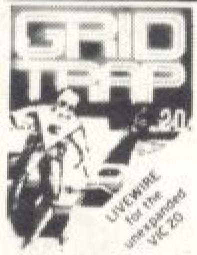
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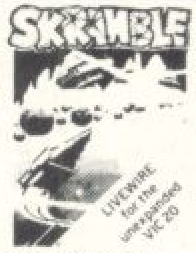




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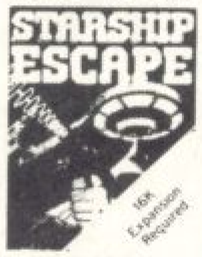
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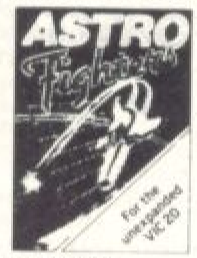
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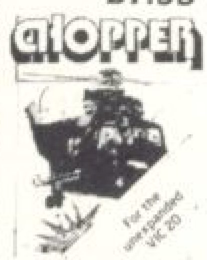
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FOR THE 64 commodore

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*







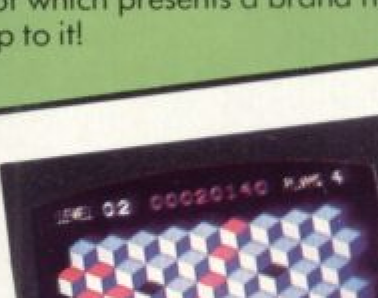
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A challenge on an epic scale! Aztec Challenge takes you on a journey to Mexico and the ancient pyramid of Tenochtitlan. The ancient Aztec gods and their devotees have ensured that no ordinary human can learn the secrets of the temple and live to tell the tale. The pyramid is protected by all manner of treacherous traps and hidden perils - an epic test of your courage and cunning. Aztec Challenge features no less than seven totally different screens - here are just three of them - each of which presents a brand new challenge. We hope your joystick can stand up to it!

*

SLINKY

Slinky, the spring, was having fun hopping about when suddenly he came upon a pile of coloured blocks, so he thought he'd play around on them for a while. Much to his amazement he found that they changed colour when he landed on them. Wow! But unknown to him, the blocks belonged to the Wicked Wizard, who sent his friends along to tease our poor hero. Slinky is a real fun package with ninety-nine levels, amazing reward displays, and action replays. Where else could you meet such charming characters as Dusty the dust cloud, Marge the magnet, Ralph the random raindrop, and Lorenzo the chameleon hopper?



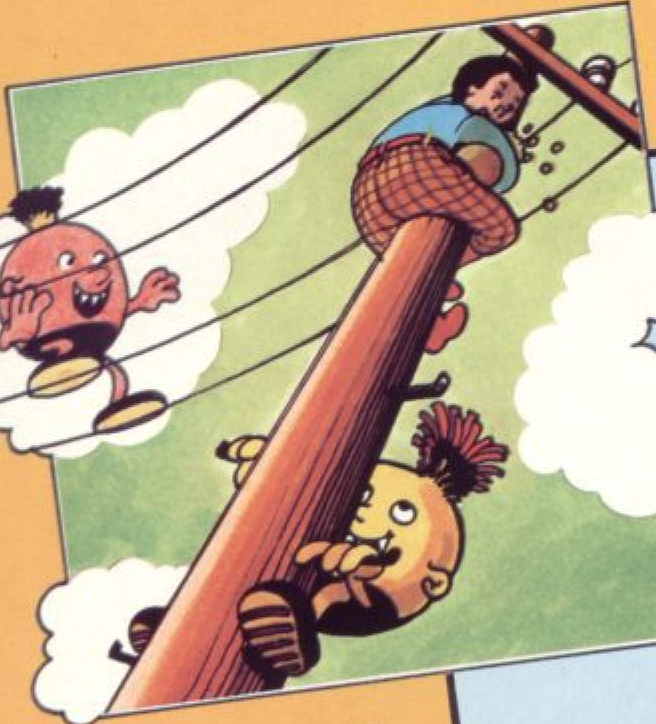
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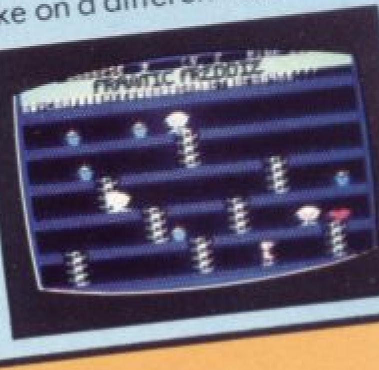
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FRANTIC FREDDIE

Frantic Freddie is fun all the way! Played to an unbelievable soundtrack of brilliantly arranged tunes, Frantic Freddie contains all the ingredients that make a game into a classic! Freddie is a telephone line engineer who has to climb up and down the telegraph poles, picking up pots of gold and avoiding the dreaded Greeblies. The Greeblies take on a different form with every new screeen, but one thing's for sure - they may look cute, but they show no mercy! Frantic Freddie also features wacky messages, funny interludes and silly bonuses. Frantic Freddie - a game with a sense of humour!





PEGASIS

Pegasis takes us back to the mythical age when the battle between Good and Evil was fought by heroes on winged steeds. As the champion of the forces of Good, you must topple the evil Black Warriors from their jet black flying horses by swooping down on them from above, then land and finish them off before they can remount. In order to keep airborne, you must keep your wings flapping with the joystick Fire button, and control direction with the stick. The brilliant programming of Pegasis gives you stunning graphics, bonus creatures, great wing flapping sound effects, an incredible simulation of flying horse aerodynamics, plus - two players can play at the same time!



*THESE FUN-PACKED PROGRAMS ARE ALSO AVAILABLE ON CASSETTE - £8.95



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SX on Show



by Henry Deckhand

Eager train-loads of computing people (mostly computer journalists) breezed into Birmingham's National Exhibition Centre for the first (of many) all-star hi-tech spectacles of 1984 – The Which Computer Show. New machines, new peripherals, new software; but even in the supposedly fast-moving world of computing, the wheelers and dealers stay the same. They've done it all before, they'll do it all again ...

Not much there for us – except that Commodore grabbed a major share of Show real-estate and gave pride of place to the SX-64 portable, apparently confident (hopeful?) that the 64-based single-disk arm-stretching portable will carve a slice of the business market for itself.

With its £895 price-tag as well, it may need a little help. No problem; "free software worth over £210", enthuses its multicolour blurb. So what do you get?

Giving it all away

There's Old Faithful, the Easy Script word processing package (still going as a freebie with the 1541 disk drive, at least until next month). It's accompanied by Easy File and Future Finance, a financial planning package that's new to us. And just to make the point that the SX-64 can be used for fun too, there's High Flyer, "a challenging business simulation game", and a six-pack of games as well. We're currently reviewing the SX.

There's more freebies for other machines too; the 700 series is being bundled up in a selection of five 'Business Packs', ranging from £1,495 to £2,495 (depending on printer and disk drives). Buy any one and you get "£1,000 worth of free software". That amounts to three business packages: CalcResult, Superbase and Superscript II. They're all in the Approved Products Catalogue and sound like being good value.

Commodore also announced a communications modem for the SX-64 – but it wasn't on display, would you believe. It will "shortly be made available" says the blurb. When (and if) that happens, it will give access to electronic mail, Telex and public/private databases like Prestel. Since the machine itself was so reluctant to appear in this country, you could be in for a long wait. No-one knew much about it, but presumably it'll be a low-cost cartridge.

New for old

The new MPS 801 dot matrix printer (also being reviewed by us) *was* on display, though. It's replacing the 1525 and, despite a better specification, costs the same (£230). It's print speed is slightly quicker at 50 characters per second compared with the 1525's 30cps. It will print double-width characters and has a facility for designing unique graphic symbols (it will produce all the Vic and 64's graphic characters too). Still no true descenders, though.

Commodore demonstrated its increasing commitment towards software by allowing seven Approved Products Suppliers to share its stand. Precision Software (who wrote Easy Script) demonstrated its new Super Office package, which integrates data management with word processing facilities – just like on a real computer. It's scheduled for release at the end of January – only for 700 and 8000 series at present: and no price yet, either. Looks good, though.

Kobra was there with its largest, glossiest and most prestigious acquisition – Microsoft's Multiplan spreadsheet package. The company has exclusive UK rights for the Commodore 64 version which it's selling for £99.95.

That is going to make the 64 an even more viable business machine – we'll be reviewing that one soon, too. A preliminary glance, though, shows that the package and documentation set new standards in the 64 world. As you'd expect from Microsoft, which makes much of its money these days from packages for the IBM-PC – where presentation is almost more important than the function.

Kobra must be doing a great deal of gleeful handrubbing, having gained probably the leading spreadsheet package from one of the world's largest and most influential software houses. But Commodore may not be quite so pleased: in June of last year *it* was reported to be negotiating marketing rights with Microsoft for the same product, and that came to naught. Apparently Commodore's proposal for a version of Multiplan (lower than Kobra's present price, as it happens) and mass-marketing strategy didn't suit either Microsoft or its existing dealers. But, no doubt, Multiplan will soon be Commodore-Approved. Certainly should be.

Handic shouldn't be overjoyed either. The Swedish company is just opening its own UK office to sell the likes of its Multiplan competitor, CalcResult ... which it had to do because Kobra relinquished its *own* deal on that and other Handic products late last year. Now we know why.

Overview

The Which Computer Show isn't intended for home computer enthusiasts, of course. But it's interesting to see where the computer business is going – spurred on by the home computer boom, and in particular the volume-retailing features that distance the manufacturer from the end consumer.

Commodore took a big stand presumably because it wants to revive its flagging position in the business systems market: but the Pet derivations looked technologically dowdy alongside the zillion 16-bit hi-res IBM-compatible micros.

The SX-64 might be what the company's putting its business-user hopes on; certainly the software on display seemed good, and the freebies in the SX-64 box are definitely targetted for business buyers.

Question of the month: will it work? Will the SX-64 sell in quantity? Is Commodore really serious about the business world? And should it be?



Fire, theft and coffee in the keyboard

Insuring your home computer

by Bohdan Buciak

If you're a responsible and judicious person, you've probably already insured your house and beloved chattels against the Great Perils – fire, flood, earthquake and other nasty occurences. Since your computer has become as valuable a part of your home as the television or grandad's cigarette-card collection, that will require insuring too.

But how do you go about insuring your Vic or your 64? What levels of cover are readily available? And how much will you finish up paying? Bohdan Buciak has been wading through an assortment of general household policies and some specialised computer policies.

Since your computer probably spends most or all of its time in your home, it's prone to loss or damage in the same way as anything else in your household. So including it in a general household contents insurance policy sounds like a bright idea. In fact, the majority of home computers are covered in this way. But is that adequate?

Household contents policies

Most of the major insurance companies now mention the word 'computer' in the wording for their household policies – having recognised, at long last, that computers can no longer be ignored. But you've got to read carefully (not only the brochure but the policy itself) to see what is and isn't covered.

Let's start with the Home Plus policy from the Norwich Union, a popular home insurance policy and one of the easiest to understand in terms of its computer cover. In the section on principal risks (fire, flood, theft, storm etc. against which all your household contents are insured) there's automatic inclusion of accidental damage to your computer. That's pretty sensible because *accidental* damage is the most valuable cover you'll need – and it comes at no extra cost.

But there are a number of restrictions (which is reasonable because you're not paying very much). For example, you're only covered for accidental damage in your own home.

Electrical or mechanical damage isn't covered; neither is wear and tear, or damage caused by repair or incorrect electrical connection. On top of that, there's no cover for damage to software. You may want all that covered – but more about that later.

HomeCover from Cornhill Insurance gives virtually identical cover. In both cases, you don't need to specify what computer and what peripherals you have. But if you acquire them *after* taking out the policy, do make sure that their value is added to the sum insured. Remember, you've signed a declaration saying that the sum insured is not less than the replacement value of your Contents. Adding a computer to an existing policy may increase your premium a little.

Cost of cover

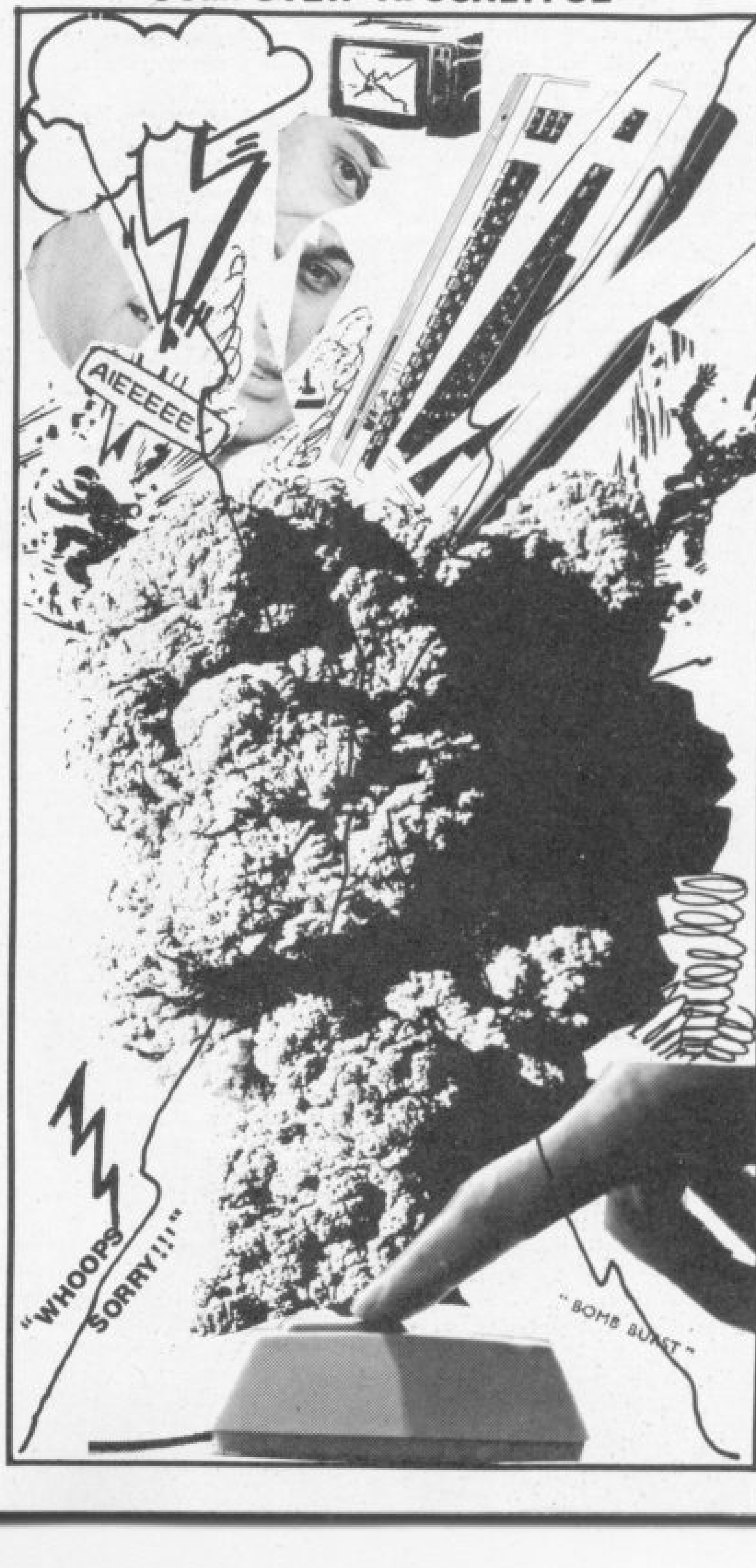
Household insurance rates differ from area to area. Obvious inner-city areas entail the highest risks and consequently the highest rates. But an average rate would be £3.50 for every £1,000 insured. So adding a £500 computer system to a policy would increase your premium by about £2.

And with some policies, like the Hearth and Home policy from Prudential, you don't get automatic cover for accidental damage to the computer within the basic policy at all. The Pru does have an 'accidental damage' section and that's the way to cover your Vic or 64. But it also covers the Contents as a whole: that almost doubles the premium, though, and you may not want to pay to cover *all* your possessions in that way.

All risks

The Prudential gets around this problem by mentioning the computer in another section, 'All Risks', there it comes under the heading of home leisure equipment. The general idea of All Risks is that you insure only items that need special cover in this way. With the Prudential, you get cover for loss or damage from almost any cause – but it's still confined to the home.

COMPUTER APOCALYPSE



Insurance



Needless to say, you can't get this cover unless you've also got the general contents cover with the Prudential.

The extra premium works out at around £1.50 for every £100 insured. But the minimum sum is £600, so you'll need a few peripherals or a more expensive machine to take advantage of such cover. There's also a £10 excess which means you pay the first £10 of any claim.

By the way, be careful about excesses – some can be as high as £25. That's about the average cost of computer repairs. So it may not be worth your while claiming.

With the Prudential, cover for All Risks is on a new-for-old basis if the computer is beyond repair. On the basic policy, it's optional. The Cornhill is equally flexible; it provides for claims settlement on an indemnity or a new-for-old basis. 'Indemnity' takes into account gradual deterioration and wear and tear. It's a bit cheaper; but you'll have to pay something towards a new computer or a little of the repair charge. Norwich Union, on the other hand, provides only a new-for-old policy. It will consider offering All Risks cover to home computers, but only by assessing each case individually.

That's really the extent of cover possible on a household policy. Certainly Cornhill won't extend accidental damage cover to transit or use outside the home. That applies to most other companies too. Generally, if you take your computer out of the house, it's only covered for those General Risks mentioned above. You're covered if the machine is stolen from your friend's house or, say, damaged by water from a burst pipe – but not if you drop it.

So far, we haven't mentioned software. This is a problem area for home insurers and they prefer not to get involved with it. Once again, you're covered for general risks; but making a claim probably won't be worth while if the value of the software lost is smaller than the excess payment specified in the policy. And how do you assess the value of programs you've written yourself? Similarly, you won't be able to claim for accidental damage or erasure of your software.

If you're now grumbling that household policies can't provide the cover you need, there are alternatives: maybe a specialised (and more expensive) personal computer policy is the one for you.

But wait: have you got the Golden Key household policy from Commercial Union? There's nothing much to distinguish this from like policies ... except that it will insure you for repairs if your computer breaks down. The cost? For a £500 system, you'll pay £12.50 on top of your existing premium. The drawback is that you pay the first £25 of any claim.

Specialised policies

Apart from the basic cover provided, the major drawback of including a computer in your household policy is that you're stuck with the existing wording in the policy. You could always change your policy, but that sounds rather drastic. Many people don't have or need a household policy.

A specialised computer policy will probably give greater depth of cover – at a price. The Cornhill, for one, offers an easy-to-understand personal computer policy specially designed for home and educational use. It's split into two sections, hardware and software.

On the hardware side, you're covered for All Risks (including accidental loss and damage) to the complete system – processor, printer, disk drive, even a display if it's used solely for the computer. Another useful feature is that breakdown is covered too – though you pay the first £25 of any claim. Similarly there's that nasty old £10 excess on a loss or damage claim.

But this policy *does* cover software; tapes and disks (including information stored on them) are insured for loss and damage arising from risks insured on the hardware section. Again, there's a £10 excess.

Finally, cover on both hardware and software applies not only to loss or damage occuring at the address the system is usually kept, but in transit too and indeed anywhere else (albeit temporarily) in the United Kingdom. So you could take your Vic on holiday to Bognor with impunity. It's covered for theft in both instances too.

That sounds comprehensive and reasonable. What will it cost you? If you've valued your complete system at £500, cover for All Risks and breakdown would cost you just over £20 per year. If you decide against insuring for breakdown, the premium drops to £7.50 (breakdown only insurance would cost £15.40).

Comparing the options

How does that compare with a similar personal computer insurance scheme from Graham Brown in Guildford? This policy also covers All Risks and breakdown, and is aimed at personal and educational use. It has no provision for covering software, though.

Primarily, hardware cover is the same at the home address. But the Graham Brown policy only covers the system outside the home if it's in an educational establishment or your office – loss or damage in transit to and from those places is also covered. But, unlike the Cornhill policy, theft whilst in transit is not covered.

Graham Brown's policy also stipulates that the computer must be no more than two years old when cover is taken. Cornhill doesn't specify any age.

For the same £500 system, Graham Brown quotes a premium of £15. That's cheaper, but you get less cover and you don't have the advantage of being able to claim for software. Both have a £10 excess tagged on to each claim.

Yer pays yer money ...

Finally, let's look at the Hi-Tech Supercover scheme from Entertainment and Leisure. This is a general electrical equipment insurance policy which works out pretty well for home computers. It's almost identical to Cornhill's, offering full cover for accidental loss or damage (including fire and theft) to the equipment whether it's kept at home or anywhere in the UK. Likewise, it includes theft in transit.

There's also similar cover for software, whose value you merely add to the sum insured. Unfortunately, accidental damage does not cover erasure of tapes or disks – no insurance policy of this level will give you *that* kind of cover. You'll have problems claiming for software you've written yourself, too. Commercial software is pretty simple to value but the insurance company would have to do some investigating if you claimed that the brilliant new version of Frogger you've written (you valued it at £1,000) had gone up in smoke.

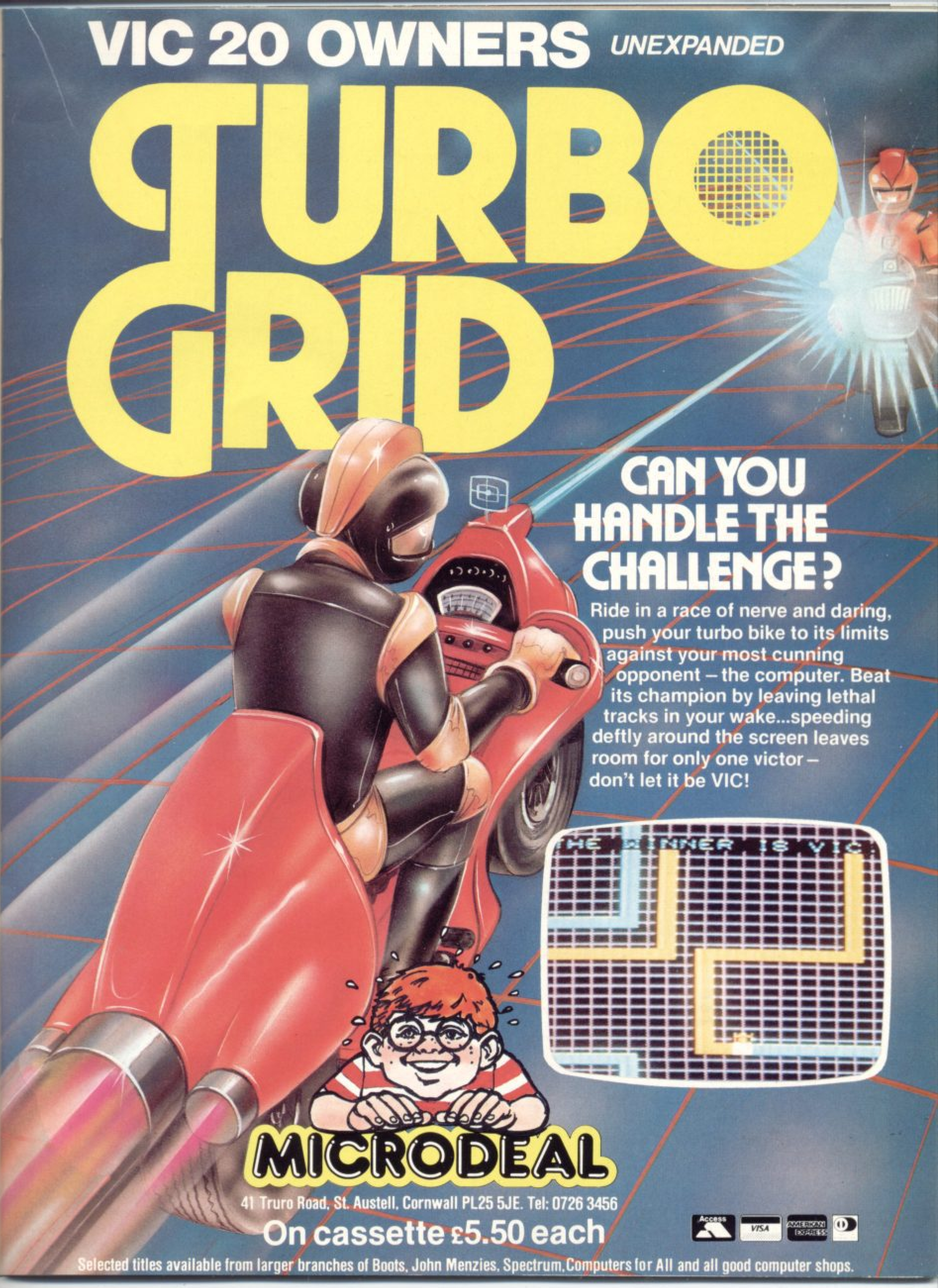
Like the other specialised policies, the Hi-Tech policy gives you a number of cover options. The cheapest rate is for cover restricted to your home or office, an annual premium of £32 for that £500 system. Extending the cover to anywhere in the UK and theft from a car increases the premium to £43.

The Hi-Tech policy is certainly the priciest of the three but it has features which the other two don't mention. Like giving a no claims discount, free cover for up to 31 days in Western Europe (take your Vic to Benidorm?), and paying for the expense of hiring equipment as a result of an insured loss. You can also spread the cost by paying over three months.

The small print

The dubious nature of small print in insurance policies has reached legendary proportions. And it is true that merely browsing through a policy won't give you the full picture – there are always exceptions and conditions.

The most frequent one is the excess payment: you pay a fixed amount on each claim. Another example of the genre, in the Hi-Tech policy, is that theft from a vehicle is covered ... but *not* if it has a soft or removable top. That's made quite plain in the


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policy but it does restrict your scope a little.

Conclusions

For the average home user, including a computer system within a household contents policy should provide adequate cover cheaply – the premium won't appreciably go up. But for people who use computers outside the home, whether at a club or educational establishment, the risks for loss and damage invariably increase. So a more specialised computer policy would be the answer.

But the real crunch comes when a disaster has occured and you wait for the insurance company to pay up. Here, reputation may account for more than policy wording. Large companies tend to pay more and pay quicker. And that's what you pay your premium for – getting your machine repaired or replaced as quickly and painlessly as possible.

These are the insurers we looked at:

Household insurance:	
Cornhill 57 Ladymead Guildford, Surrey GU1 1DB	**0483 68161**
Norwich Union PO Box 6 Surrey Street Norwich NR1 3NS	**0603 22200**
Prudential 142 Holborn Bars London EC1N 2NH	**01-405 9222**
Legal and General Southgate House 15 Cannon Hill London N14 7DA	**01-882 6181**
Commercial Union PO Box 93 100 Leadenhall St London EC3P 3HD	**01-283 7500**

Personal computer insurance:	
Cornhill (as above)	**0483 68161**
Graham Brown & Co Pannells Court Guildford, Surrey GU1 4EY	**0483 65651**
Entertainment and Leisure PO Box 100 Great Ouseburn York YO5 9SZ	**0901 30711**

If you own a Commodore 64 T.M.
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Calc Result is the worlds most effective spread sheet for the Commodore 64.

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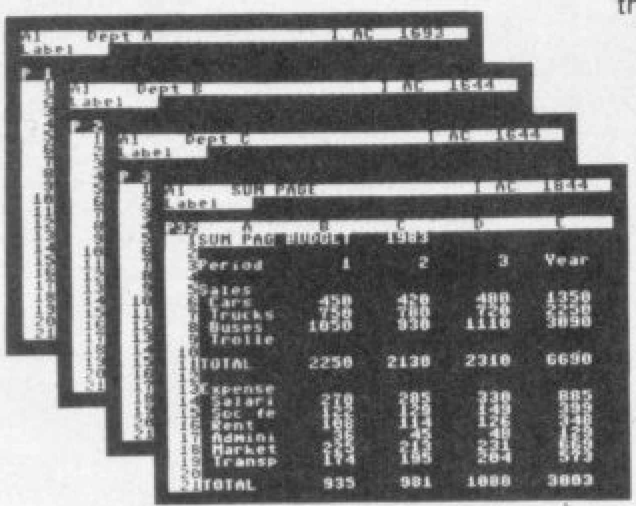
There are many practical uses, for example loans and mortgages, family budgeting, cash flow, stock portfolio, income tax analysis, gas and electricity bills, and many more areas.

In business

Use it for budgets, calculation, simulation, construction, planning etc. Used by managers, salesmen, scientists, doctors, lawyers, dentists, consultants, accountants. . . .

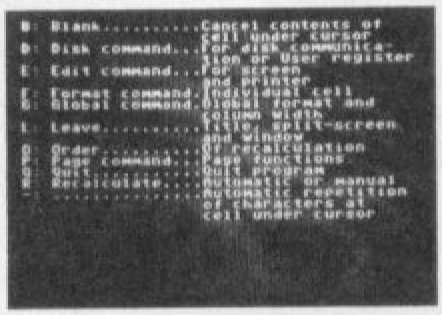
Three-dimensional

Sum pages to get a grand total.



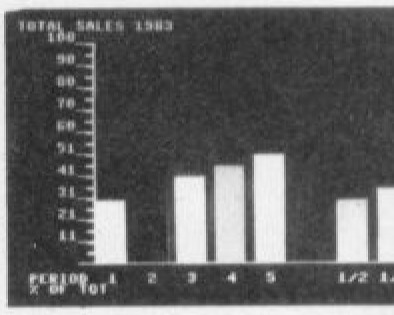
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Shedding some light (on the matter)

Three lightpens reviewed by Bohdan Buciak

The lightpen is yet another peripheral home computer buffs are being invited to add to their 'wanted' list. The device detects a point of light on a screen and either changes the display or inputs information from it to the computer. But it's becoming popular in the home – not just for drawing and game-playing, but for programmers to extend the range of their work.

The DAMS Pixstik

We'll start with the Dams lightpen (or the Pixstik, from Dams subsidiary Computapix), with its drawing cartridge. The latest version is claimed to be "Greatly improved" – a preliminary pinch of salt there, but it turned out to be quite true. It comes in two versions; for the Vic and the 64. Both come with a plug-in cartridge, a weighty sheet of instructions and an even weightier £25 price-tag. So lets plug one in.

We acquired the 64 version – which is simplicity itself to use. The program loads immediately, as you'd expect from a cartridge, and you're ready to draw as soon as you've plugged the pen into the first games port.

One small gripe here; Dams might have used more flexible cable. The pen's plug is pretty large and it doesn't fit the port very securely. Pulling on the cable only adds to the problem.

Quick draw

The drawing functions and choice of 16 colour blocks are displayed permanently on the screen, as well as x (horizontal) and y (vertical) coordinates. This is sensible as it lets you select drawing and colour options quickly and easily.

That's done by pointing the pen to the appropriate spot and hitting a shift key. You're helped by a target-like spot which indicates the pen's position anywhere on the working area of the screen. The coordinate display is also a sensible feature – but more about that later.

Apart from selecting drawing colours, you can change the colour of both the screen and the border. The manual recommends a light colour for the screen as this increases the pen's performance. You're given a choice of three 'pens', which overcome the problem of colours merging when they overlap. You choose a different pen to draw inside an area already filled with colour.

Shaping up

You're given a reasonable variety of standard drawing functions: line, triangle, rectangle, circle and ellipse. All shapes are quick and easy to draw. To draw a circle, for example, you need plot only the centre and a point on the circumference. Shapes can be either filled with colour or left as line drawings. Lines can be thin or drawn with larger blocks. There's also a 'paint' mode which you use freehand to get a speckled effect.

But the freehand mode proper is of next to no real use because the pen won't remain steady for long enough to give you a reasonable degree of accuracy. That's why you're given the choice of shapes; they're produced mainly through software rather than manual control. Without them, you'd soon get bored and frustrated. But even they can't be produced with pinpoint accuracy.

Time for a few home truths. Firstly, a *really* stable lightpen hasn't yet been produced for home computers. It's not all the manufacturers' fault; there are technological and computer limitations too. On top of that, the television set may not produce a bright enough image for the pen to read; dark colours don't emit enough light. Then there's static which builds up dust on both the screen and pen tip, making the pen difficult to control.

Dams has properly realised these limitations. So it has added a couple of features that compensate for the pen's lack of *real* drawing ability. They're called Bounce and Animate; and both of them use the pen's rather clever memory ability.



Dams has provided four memories for the pen. By going into Command mode (f7), you can store and recall four separate drawings. When you've secured the first picture in memory, you can use the Clear function to clear the screen and produce another picture.

When you've got a maximum of four pictures stored, you can use either Bounce or Animate to display them in sequence at half second intervals. Animate will display the four 'screens' in a 0-1-2-3 sequence, whilst Bounce works in the same way but bi-directionally. If you've coordinated your four pictures, the effects can be quite stunning. The manual very usefully gives you a blow-by-blow example to give you the general idea.

This is where the x/y coordinate display becomes useful as it helps you calculate positions more accurately. But, as you'll know by now, it's virtually impossible to make the pen stay on a particular set of coordinates.

You can even save your creation on tape or disk for future display. But be warned; we used disk and found the Commodore drive took a long time to load and save. Obviously that depends on the complexity of your drawing but it does mean that using tape would be too slow and tedious.

Summing up Dams

The Dams Pixstik is easy for non-computer folk to use and its manual is good. But it will frustrate the more creative amongst you because it jitters and shakes so much. Of course, you may want to use the pen in other ways (£25 is a great deal to pay for a mere drawing pen).

Dams *has* realised that, and has begun producing games cassettes for the pen. Three are already available for the Vic and 64, *Flack, Tic Tac Tow* and *Melody*. You could buy them separately at £5 each: or you can take advantage of a package that gives you the lot (pen, drawing cartridge, three games) for £29.95(we can't say anything about the games until we get them for review). Make your own mind up about the price.

Under review:	**Dams lightpen (for Vic and 64)**
Supplier:	**Dams Office Equipment Kirkby Industrial Estate Liverpool 33 7UA 051-548 7111**
Summary:	**Good drawing facilities, but limited scope for freehand work. Good manual. Only small range of games available.**
Price:	**£25 (games cassettes £5 each)**

The Stack lightpen

Let's move on to the Stack lightpen, which already has ten games available for it – but no painting software (Stack tells us that's coming in January). The pen isn't cheap either; it also costs £25. So what do you get for the money?

Again, we acquired the 64 version – which comes with an eight-page manual and a free game on cassette. The manual is fairly basic but useful: it gives a concise description of how a lightpen works, followed by two short programs for setting up the working area of the screen and displaying the x/y coordinates.

If you've grasped all that (it's all a little unnerving for a complete beginner) you then confront the touch control on the pen, followed by a program that lets you put a coloured square at will on the screen. That's as far as the manual takes you – not very far. The rest is uncharted waters.

One useful point about the manual is that it shows you how to calibrate your pen for a particular television; that should steady the jitters a little. The idea behind this was to allow you to alter x and y values in the program listing of Stack's games to improve the pen's performance. That would have proved a tricky task for many people. So Stack has wisely built an automatic pen calibration feature into all the lightpen games. You can point the pen to the calibration spot on the screen until the thank-you message appears.

Despite this facility, Stack's pen was probably as jittery as the one from Dams. It was slightly easier to handle though; instead of pressing the shift key, contact is made on the pen itself – by two touch-sensitive metal rings.

Drawing the line

According to Stack most people don't want to use lightpens for drawing. It's backing up that perspicuity with lots of games tapes. Another reason is that

Under review:	**Stack lightpen (for Vic and 64)**
Supplier:	**Stack Computer Services 290-298 Bootle Road Bootle, Merseyside L20 8LN 051-933 5511**
Summary:	**Wide range of games. Only few games use lightpen's features to the full. 'Paintbox' software available soon. Basic but concise manual.**
Price:	**£25 (games cassettes £5 each)**



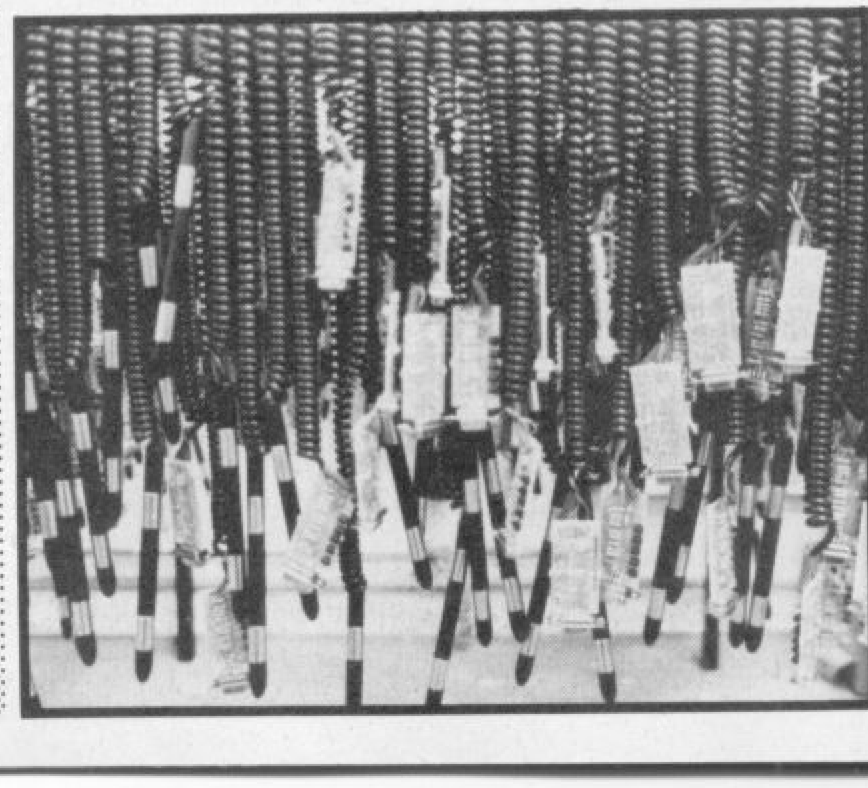




Stack has apparently realised present lightpen technology won't let you draw very well anyway – and that seems to us like sound thinking.

With its emphasis on game-playing, you'd expect some pretty good examples for the lightpen. But the free game included in the package, *Concentration*, probably won't make you feel your money's been well spent. It's the well-known turn-cards-over-remember-them-make-them-pairs game. And a pack of *real* cards comes a little cheaper.

The same goes for a few more of the games Stack's made available (they cost £5 each): games like *Othello*, *Draughts* and *Seek and Destroy*. They're all well-known and probably easier, more enjoyable and much less expensive to play with pen, paper and plastic. Admittedly, Stack offers some good visual and sound effects; but it does make you wonder why they bothered.



More fun and games

A few games, like *Simon*, are more impressive and actually make good use of the lightpen as a pointing device (when it decides to behave). *Lost in the Labyrinth* also uses the pen in this way. It's an eccentric game though, and probably not to everyone's taste – though it certainly has more lasting value than some of the offerings already mentoned.

Another good and more intelligent game is *Crossword Twister*. This again uses the lightpen to the full and displays some brilliant effects, like letters drifting down the screen into the square you've chosen on the crossword.

Leaving content aside, Stack must be congratulated on its overall games presentation. There's ample on-screen instructions and all the games play marvellous music.

On some, that's the best feature. *Seek and Destroy*, for example, gives you a Baroque-ish rendering of the *Dambusters* theme – very appropriate, very odd.

Stack says it is continually developing games for the lightpen – which is encouraging if you've bought one and wondered whether it was all worth it. The earliest games, though, are frankly boring on average, and they don't really justify a lightpen at all. More recent offerings are much better and, hopefully, will continue to improve.

But if you don't like playing games or drawing you could certainly incorporate the Stack pen into programming. Despite the lack of in-depth explanation in the manual, an experienced programmer should have no real trouble.



The Datapen

But maybe you don't like drawing or game-playing? Maybe you want a down-to-earth pen that should be cheaper because it doesn't incorporate unwanted facilities. That sounds very logical, but wrong – at present.

The new Datapen won't let you draw marvellous pictures instantly or play games. Of course, it wasn't designed to do those things. But it still costs £25. Ah, perhaps it's more stable than the rest? Wrong again.

But that needs qualifying, so read on. Datapen sent us both Vic and 64 versions of its pen; and very stylish it is too. It looks rather like a surgical implement – the others just look like pens.

We tried the Vic's pen, which comes with a tiny introductory manual and a cassette tape full of introductory programs. The pen has a built-in switch and a LED lamp which lights up when the pen's pointing at the screen. (What value that has escaped us.)

The manual doesn't tell you a great deal, and what it does say is repeated for other home computers. So there's not as much information as you thought. Was it too much trouble to produce a dedicated manual?

It does cover the basics, though: a little program that demonstrates the switch, another one that reads x/y coordinates, a tiny section on stability of position and higher resolution. Those last bits will probable baffle most people and the rest isn't particularly useful by itself. For £25, you'd expect a great deal more in the way of explanation.

Simple symbols

But the pen can be useful for the less experienced via the accompanying tape. The first program, *Symbol Draw*, lets you use all the symbols and characters the Vic can produce. But at best, you can draw only pretty patterns.

The next program, *Medium Resolution Draw*, supposedly lets you draw freehand in blocks a quarter the size of a low-res graphics block. But it doesn't work very well at all.

The erase facility works just as badly. You draw the same block with Erase mode on – which sounds simple, but the block won't disappear unless you're exactly on target. Since the pen leaves no image on the screen, there's no way of telling exactly where you are – most frustrating. One function that does work well is saving and loading from tape, if that's any consolation ... and it probably won't be.

Generally, the Datapen was just as unstable as the othjer pens. To improve stability Datapen supplies a tiny rubber ring that can be inserted into the tip of the pen. But that cuts down the amount of light entering it; so you need to turn the TV's brightness up – very unpleasant for the eyes.

The 64's version

In fact, the pen labelled for the 64 seemed to work better than the Vic's pen – they look identical anyway. Datapen's Commodore 64 version *is* a slight improvement (perhaps dear old Vic doesn't get along with lightpens). At the time of writing, the supplier hadn't yet got down to producing the equivalent of the Vic version's introductory programs: but it did come with what amounts to a manual on tape. That's a nice idea and it works pretty well.

The on-screen information itself helps you get to grips with reading x/y coordinates and using the Datapen's switch. When you've mastered that, you're given a little demonstration of sprite movement and an indication of which part of the program it's located. So you can list the whole program and work out exactly what's going on.

But that's as far as it goes. You're directed to the 64's manual for more info on sprites in particular. Again, for the price, you'd expect Datapen to provide much more in the way of sound practical guidance.

Conclusions

To sum up, if you're buying a pen for programming purposes you're going to be left pretty much to your own devices (as it were). Neither the Stack or the Datapen will give more than basic help – but perhaps that's all you need?

For the drawing enthusiast, the Dams pen provides scope (albeit limited) for creativity.

Games players? Well, Stack's offerings started out on a low key but they're getting better and should improve in future.

Lightpens are still rather expensive and still don't really merit the price tag. Manufacturers make pronouncements about continued improvements, more advanced technology etc. but lightpens are still limited by their frustrating and sporadic 'shakes'. As data input or pointing devices, they work very well. But for more sophisticated applications, they're all still rather limited.

Under review:	**Datapen (for Vic and 64)**
Supplier:	**Datapen Microtechnology 39 Kingsclere Road Overton, Hants RG25 3JB 0256 770488**
Summary:	**Vic version has limited drawing ability. Freehand mode virtually useless. Manual sparse and unhelpful. No games cartridges available. Slightly improved 64 version.**
Price:	**£25**

Still to be reviewed: lightpens from Alphatronic and Stonechip.

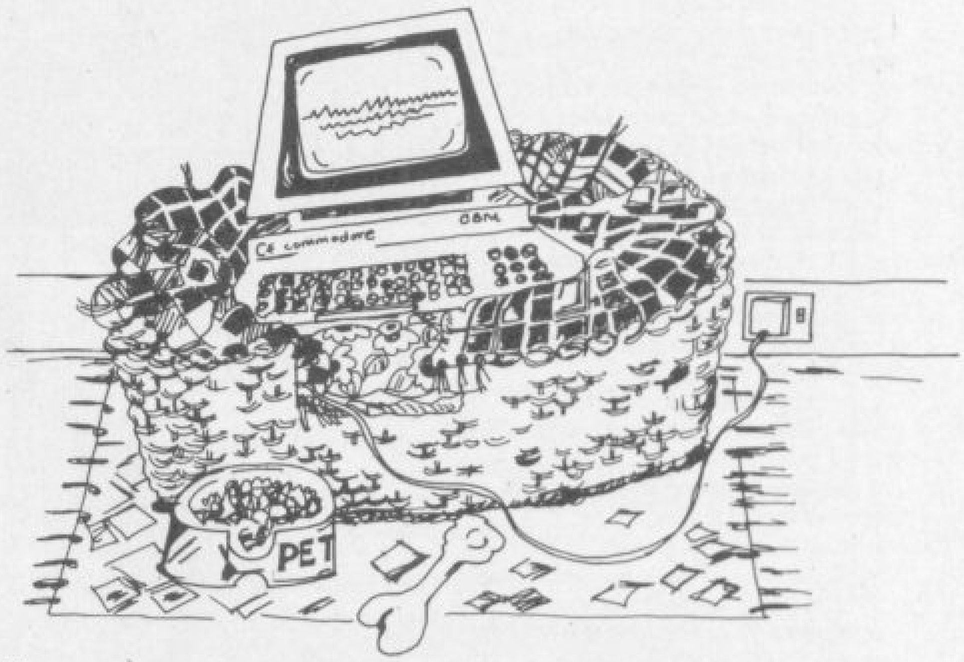
The Fretful Pet

One man's journey towards computing

by Bohdan Buciak

Fred Reid used to put up with doing menial jobs like labouring, working in warehouses, on the factory-floor. But he's put all that behind him, and that's probably not as easy as it sounds. Now, he's made the break; he's working for himself, making and repairing guitars. He could call himself a craftsman – but he's too unassuming for that.

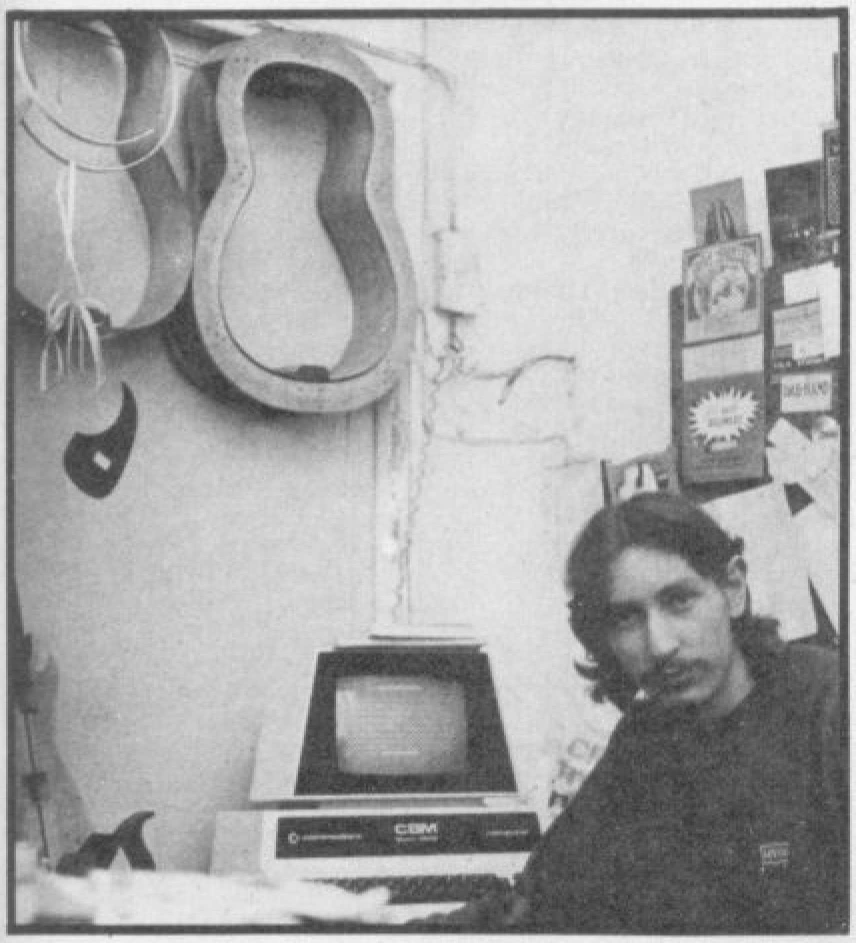
Fred's other joy along with doing things with guitars is playing around with computers. So it's not surprising that he should try and put an ageing Commodore Pet 3006 to good use in the fledgling and rather precarious one-man business he's running.



Playing with guitars

"Ever since I was sixteen I'd wanted to be independent of others but I've still got a long history of doing boring jobs for other people" – jobs like lumping gear around for a small-time rock band.

Still, working for the band inspires the youthful Fred Reid to buy a cheap guitar and become one of the millions of amateur strummers trying to play *Stairway to Heaven*.



Cutting a short story even shorter – Fred isn't satisfied with his cheap guitar; he fiddles around with it and tries to improve the way it plays. And he starts repairing other people's guitars, acoustics and electrics, with the smattering of experience he's gained.

"I had a few basic tools and a little knowledge of electronics because that was my hobby. So I also started building and selling pre-amps for synthesisers to West End shops, touting them around and trying to get repair work." Pretty soul-destroying stuff for the youthful Fred, but he has a part-time labouring job as well to keep the rent-man from the door.

It might be persistence or being in the right place at the right time, or a combination of both, that gets Fred this Lucky Break. "I was doing one of my weekly trips down the Charing Cross Road; pretty fruitless because I didn't have much experience to talk of." But he still gets a job offer from one of the musical instrument shops (with Repairs in the basement). "They were impressed with my organisation – I'd brought a tool kit with me. So I got the job, like an apprenticeship really."

Not quite rags to riches yet, though. "Six months later we parted company. Nothing nasty, just seeing too much of each other. But I'd picked up enough skills, and doing the job filled up a lot of gaps in my knowledge."

Going it alone

Armed now with more and better skills, Fred tries to go out on his own. "I spent two years trying to amass enough wealth to buy the necessary tools and equipment." He works from home in his council flat; but you can't run a business (officially, anyway) on council property. He's not getting enough customers to make it all worthwhile either. So clouds darken his vision of independence ...

"I had a lot of bad luck trying to find premises; it was either too expensive or I got there too late." But eventually a shiny if not exactly silver-lined cloud drifts along. "Finding the place I'm in now was a stroke of luck; it's cheap and there's a few other musical instrument repairers around, like a community really – it's very pleasant here."

"Here" is a converted Victorian hospital on the edge of London's decaying East End (or on the edge of London's exciting high-powered City area, depending on which page your A–Z falls open at) where the moans and groans of past patients are being

replaced by more tuneful sounds and a lot of small businesses. (We're in here too.)

Getting a Pet

With his new home comes a less than new computer, a Pet 3000. "A customer brought it in wanting me to write a program to run a polyphonic synthesiser. The arrangement was that I do the work and keep the Pet as part-payment". A daunting task, surely, for someone who'd never used a computer before? "It looked like a nice challenge for me, but it's taking a long time."

Like the bloke in the Talents parable, Fred starts thinking up useful things to do with the machine. Does he play games on it or does he put it to good use? He comes up with an idea (secondhand because another guitar-maker thought of it first) to write a program that calculates the distance between a guitar's frets. But would that really be *useful*, or was it just another challenge?

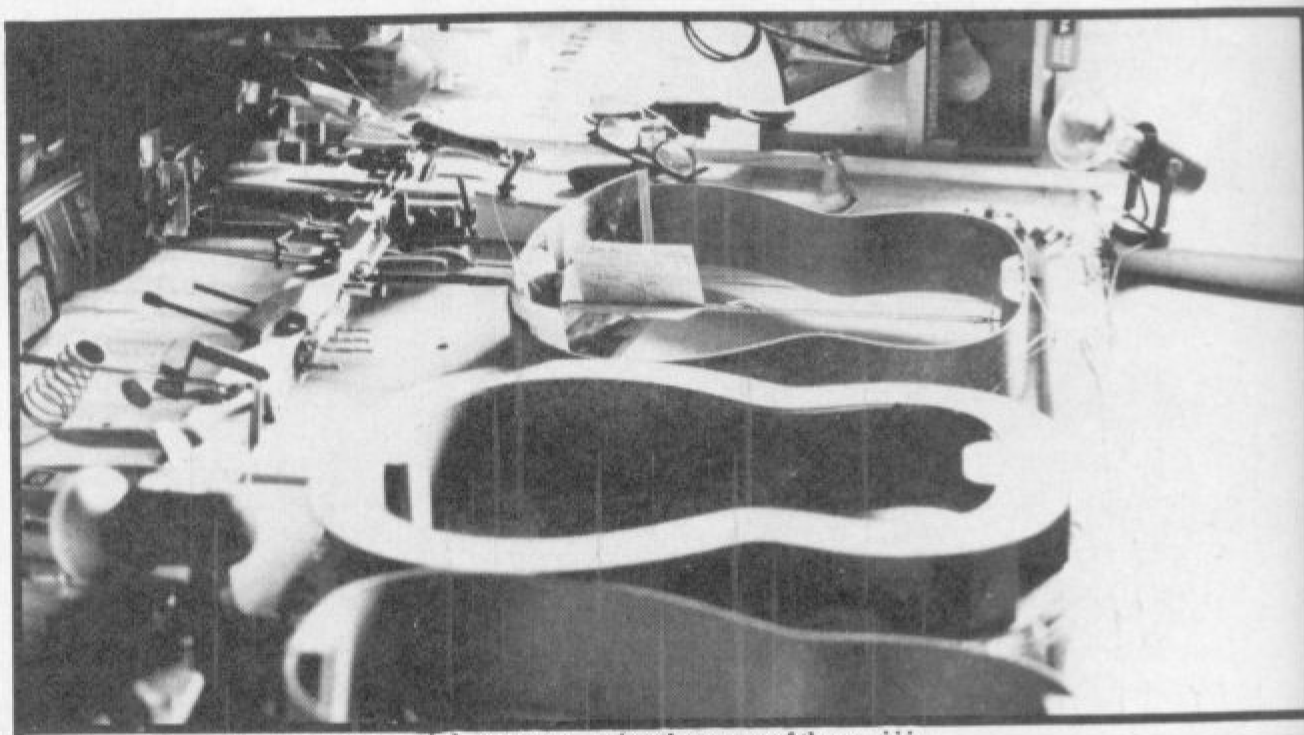
"My problem's always been that I do my calculations (there's a standard formula) on paper which gets lost and destroyed. The job usually takes about half an hour and involves a little bit of guesswork. You only find out whether you've got it right when the whole guitar's finished. It's too late if the thing won't tune – and you've lost credibility with the customer." Pretty disconcerting for a budding rock-star with his sights glued on platinum discs and NME with a bullet.

Fred spends a lot of time in his murky workshop just defining the problem in a way that could be handled by a computer. He's got a friend who works with computers to help him out. So eventually he emerges with a simple program; you key in the scale-length (distance from bridge to neck) and the number of frets you want. Press a button; and hey presto, the figures come up, accurate to eight decimal places.

That's got to be accurate enough? Well, not for Fred.

Fretful problems

"The trouble was that it calculated the *theoretical* lengths. You increase the pitch of a string when you press it down, so the height of the string above the fret becomes important too, and the



size of your finger. There are also slight differences between electric and acoustic guitars – with electrics you can sometimes vary the scale-length by adjusting the bridge horizontally."

Faced with these mamoth problems, Fred starts putting more variables into the program. Like the size of an average finger, the optimum action height for both acoustics and electrics, the guage of the string to be used, the tension (a factor of 1 to 5) on the neck. It's not really an obsessive quest for perfection though, more of an insurance policy against wasted time, money and reputation.

By Christmas 1983 Fred has made four guitars using the program; the first attempt didn't quite work out but that was before he'd thrown in those new variables. Is he now satisfied with the revised version? "The program works very well now and it's just about as accurate as I'd possibly want.

"But I still haven't come up with a reliable formula for classical guitars. There's such a lot of different string weights and tensions that you've got to rely a lot on intuition." And that's probably how it's going to stay.

Financial grappling

Being the resourceful person he is, Fred won't let the matter rest with computerised fret calculating. He has surprised himself with his ability to produce a program that works, and one that also looks to be pretty useful.

With his new-found confidence he prepares to grapple with his finances – what there are of them.

"I decided to produce a list of all my customers – names, addresses, phone numbers, details of instruments. All the information I usually lose when it's written on scraps of paper." He goes about doing this in the same pedestrian way; starting with somebody else's program, a simple records file, and then pulling it to bits to see how it works and how to expand on it.

"It took me quite a while to work out how to present the information." Now that he's done it, he goes on to scale even greater heights: to produce an accounting package, specially designed of course, for his particular needs.

"I've worked out a program that tells me in what state my monthly finances are; who's paid me, who hasn't, what I'm still owed and, hopefully, when I'm going to get the money." He regards this last point as a life-line; getting paid is often complicated by people making a down payment (what he calls "putting money up front") with the rest due on completion of the work.

And he goes from programming strength to strength; he works out a basic stock-control system and a package that lets him keep track of his bank balance and even draws nice little graphs – could be on the very edge of financial forecasting? Fred reckons it should impress his bank manager, anyway.

In developing all these programs, he's probably gone through the same learning curve and development stages as the professional programmers. Trouble is, he could have bought the software and a Vic or Commodore 64 to run it – but he didn't have the money.

Disadvantages

That's where the disadvantages start creeping in. Fred uses the standard Commodore cassette machine for storing programs so he wastes a great deal of time just loading files. As yet, a disk drive is an unaffordable luxury, but he knows he'll need one to integrate the financial programs he's already got.

He wants a printer too; not only to get hard copies of his finances to show to the bank manager (at the moment he just takes 35mm photographs of the screen!) but also to print out his graphs – perhaps a little word processing. He's already thinking of devising a logo to impress customers.

Then there's the inherent deficiencies of the Pet, its limited memory, its tiny 40-column screen. Fred's pretty pragmatic about such things – he'll carry on using it in the absence of anything better because it's there, and he's grateful just for that.

Fred is really pleased (not self-congratulatory) about the system he's developed – and rightly so. "If I hadn't taken this step towards computerisation, my business would be in a real mess right now. I'm planning ahead more and keeping in touch with the state of the business. It's a matter of confidence really – confidence that things aren't as bad as they seem."

But he's also managed to combine business with pleasure. Not just the pleasure of doing what he enjoys with no Boss breathing down his neck, but the satisfaction of being in the know about computers. "It's giving me a lot of fun and it's an exercise for the brain" – not that his brain needs organising, it looks in pretty good shape.

Since we interviewed Fred, he's acquired a 64 and is doing great things on it for us. Expect a stream of articles, victuals, reviews and a series on DIY music synthesis.

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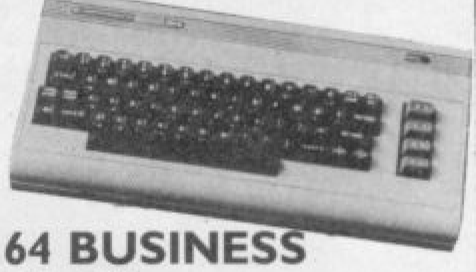
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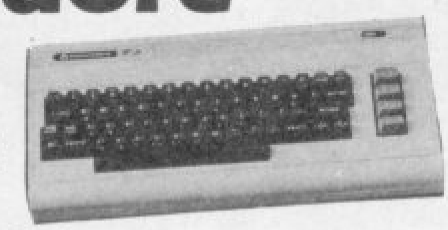
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Letter from America

by Mike Apsey



Here is a random collection of interesting facts about your Vic-20 and its operation.

If you make your first program line a REM followed by a shifted "L", your program will not LIST. Instead when you LIST, you will see only a ?SYNTAX ERROR.

POKE22,35 will keep your program line numbers from printing in a LISTing. This POKE may be used in conjunction with the CMD command to give you a tiny word processor.

Pressing the plus, minus and pound key all at once will home the cursor.

LOAD"$$",8 will return the disk header, and the number of blocks free, but no contents.

LOAD"$*—PRG",8 will show only the PRG files on the disk.

LOAD"S*—SEQ",8 will show only the SEQ files on the disk.

Using the memory-read and memory-write disk commands is similar to PEEKing and POKEing the Vic memory, but directs the commands into DOS and DOS RAM. VIC-1540/41 drives contain about 2K of RAM.

Lo-res graphics are those pictures drawn using only the characters available from the keyboard, with none specially defined.

The CMD command contains a carriage return. If you wish to keep it from happening, send "CMD,".

SYSPEEK (65532)+256*PEEK (65533) will reset any Commodore computer, and is a universal reset call.

POKE212,0 will cancel the quotes mode. POKE212,1 will turn it on.

Location 653 contains the three flags, SHIFT, COMMODORE, and CONTROL. If bit 1 is set, the SHIFT key is pressed; if bit 2, it's the COMMODORE key; and bit 4 reveals the CONTROL key. How do you see which bit is set? Use the boolean operand "AND" to compare bits, as illustrated in this short program:

```
100 IF PEEK(653) AND 1 THEN
    PRINT "SHIFT": GOTO100
200 IF PEEK(653) AND 2 THEN
    PRINT "COMMODORE":
    GOTO100
300 IF PEEK(653) AND 4 THEN
    PRINT "CONTROL":
    GOTO100
400 PRINT "          ": GOTO100
```

The ANDing technique above could be a key to your understanding how one byte (eight bits) can contain more than one piece of usable information.

If your disk gets stuck in the ?DEVICE NOT PRESENT rut, initialize it with: OPEN1,8,15,"I": CLOSE1.

A reader reports an increased 1541 reliability by raising the drive above the table with taller feet, and installation of a small fan at the top-rear of the drive to draw air up through the drive.

A disk can be formatted without changing the ID, by leaving it out of the format command. This will only work if the disk has been previously formatted, and an ID exists.

Do not use GO as a variable – to honour the spaced-out GO TO, Commodore included GO In the keyword table. If G occurs within a variable line followed by the boolean operator OR, make sure a space is placed between the G and the OR.

Confused about whether you have the right number of open and close parenthesis in a Basic line? Remember that you should have the same number of CLOSES as you have OPENS.



Transactor (the US newsletter) reports that a program listed to the 1525 printer immediately following a SAVE will drop characters. A suggested fix is to type VERIFY (RETURN) RUN/STOP.

The 64 VIC chip has no interlace mode: the Vic-20 does.

If a program is halted with RUN/STOP, entering CONT will resume the program – unless any Basic program lines have been added, deleted, or edited. CONT-inuing will cause the prompts to no longer be suppressed, and some screen clutter may be generated in the CONTinuation. It will be quickly noticed in LOADs from within programs.

Disk drive making funny noises? It is possibly to place some disks into the drive with the disk slightly off center. This is especially noticeable on disks without hub rings. Make a small attempt not to get carried away with the assumption all is well when you throw your next disk into the drive.

Programs can be easily loaded from the disk directory, by placing the cursor at the first position on the line containing the desired program, typing LOAD (over the number of blocks contained), then cursor past the closing quote, where ,8: is added. The screen will over-print and look quite messy; but the LOAD will work, and the program will LIST and RUN.

With most printers top-of-form adjustments should be made prior to power-up, as it is the initialization of power that sets the printer.

I would like to report a reduction in twin lock-ups since replacing my 6522 VIAs with 6522As. Inside the Vic, the 1MHz 6522 is clocked at 14.318 MHz/14 (or roughly 1.023 MHz) – leaving no margin. The 6522A is a 2 MHz version of the same chip.

If you would like a blank line or two to separate sections of a program, enter your desired line number followed by a colon. the line will stay, but will not give ?SYNTAX ERROR when RUN. It is similar in this application to the REM statement.

Our regular round-up of games reviews

We get to see a lot of games here at Commodore User, so many in fact that we can't handle all the reviewing ourselves – we farm out some of them, which is why our reviews have someone's initials at the end of them. We look at everything we get, but we don't necessarily print all the reviews we write: instead, we tend to stick with (a) all the best games we come across and (b) those games that you're most likely to find in the shops or the mail order ads.

ATOM SMASHER
Vic-20 (Unexpanded)
Keyboard or Joystick
Price £6.99

Super ZAP!!! Eat your heart out, Enrico Fermi! Join 'Greenpeace'(?) and stop the runaway Nuclear Reactor going into meltdown. What a wonderfully constructive game.



The scenario goes quite a bit haywire after this; you do not have to shuffle graphite rods and liquid sodium coolant, but instead you have a spaceship-type thing with a Directed Energy Weapon to disrupt the over active Proton within the nucleus whilst dodging the electrons – and all this before the molten debris swamps the core! Your high-tech 'Waldo' can also destroy the encroaching molten mass: but this is no long term solution, you must keep zapping those Protons.

Loads in two parts. I consider the use of the space bar to move through instruction pages is a mistake; it is too easy to flip over more than one page. The game however is brilliant! While the graphics are fairly simple hi-res, the sonics are great – they really wind you up as your time runs out.

It is quite a hard game to play; level one is all right for a beginner, but at the higher levels it really gets *hot*. So does any game: but this one is a must! *JDC*

Romik Software

Presentation:	■■■□□
Skill level:	■■■■□
Interest:	■■■■□
Value for money:	■■■■■

BOMBER RUN/ SUPAVADERS
Vic-20 (Unexpanded)
Keyboard only
Price £6.95

Two games from you-know-who. **Bomber Run** is a classic *Scramble*-type game with little to recommend it above many others, other than the pretty city-scape over which you fly: **Supavaders** is a fairly good variation on the *Invaders* theme, where the aliens not only fall from the sky but take over your city as well.

Unfortunately these two games have almost nothing original to offer and simply do not compare in quality to even the poorest games available from the established software houses. *JDC*

K-TEL

Presentation:	■□□□□
Skill level:	■□□□□
Interest:	■□□□□
Value for money:	■□□□□

BOSS
Vic-20 (+8K)
Keyboard only
Price £14.95

The first of three Chess programs I ended up with in time for this review: interesting to see them all together. According to its own publicity, *BOSS* is supposed to be the best chess program around: but unless you are at a very good level yourself you won't notice much difference in quality of play between these programs.

With *BOSS* you get a slightly

SCREEN SCENE

squashed chessboard, which is no trouble after a few minutes play; the graphics are clear and the moves very easy to make. You can't change the colours of the screen and pieces, but you can set the screen with POKE 36879 before loading and your chosen screen colour remains in operation whilst the program is running.

Major playing difference – BOSS takes *en passant* automatically whilst *Grand Master* only does this if told to. But only a fussy chess player will find the slight variations each of these programs plays on the rules in any way annoying.

So this is a good basic chess program with its nine skill levels. The explanatory notes could do with a bit more detail, though. *JDC*

Audiogenic

Presentation:	■■■□□
Skill level:	■■■■■
Interest:	■■■■□
Value for money:	■■■□□

KRAZY KONG
Vic-20 (+16K)
Joystick or keyboard
Price £7.95

This is about the best version the famous arcade game I have seen for the Vic. It has good multi-colour graphics with a tune at the start, though a little more sound when "Mario" runs would be better. The game is well presented on the screen, with interesting titles and high score (top four scores can be recorded to three initials). Packaging is good, with a background story and full instructions.

Either joystick or keyboard can be used: I found using the keys almost impossible, and a joystick allows much quicker movement.

There are four different sets with increasing difficulty – including the familiar obstacles barrels, fireballs, the lift, and holes to jump across. The lift on the third set requires perfect timing to jump on to it, and of course, to jump off again.

Well done Anirog! *JB*

Anirog Software

Presentation:	■■■■■
Skill level:	■■■■□
Interest:	■■■■■
Value for money:	■■■■■



MANGROVE
Vic-20 (Unexpanded)
Keyboard or Joystick
Price £7.95

Another popular one from Audiogenic that I didn't like the last time I reviewed it, which only goes to show how much influence I have!

Mangrove is a cross between *Life* and *Asteroids* in style but with a biological scenario. You must enlarge and protect your colony of cells by leaving baby cells in the wake of your cursor as you chase the invading killer

microbes. Since your baby cells and the main culture only survive the passage of the generations according to the usual rules of *Life*, you can't just leave your baby cells anywhere or they will not survive; and you can't let a part of the main colony get cut off or it will die too. Clump them, clump them!

Apart from your skill with the cursor you have an emergency supply of germicide. But this must be used sparingly – that is, three times per game. The passing of the generations happens with ever-increasing speed, so it can all get very hectic. The sonics get very hectic too, even though they are not very original. The graphics are clear but not very clever, and I am still not thrilled by the game.

So what makes it so popular? Well, it *is* very hard to play; your cell culture dies off at an alarming rate and those killer microbes and new generations come faster and faster. So if you think you can handle a tough one this is well worth checking out; but a lesser games player may find the overall presentation on screen a bit uninteresting. *JDC*

Audiogenic

Presentation:	■■■□□
Skill level:	■■■■■
Interest:	■■■□□
Value for money:	■■■□□

MATRIX
Vic-20 (+8K)
Joystick only
Price £6.00

If you bought *Gridrunner* for the unexpanded Vic and have since had an 8 or 16K expansion, this is the game for you! It is based on *Gridrunner*; the game has 20 sectors to clear, with the first six levels being selectable by the player. The main obstacle is the centipede-type creature, but there are also some 'cosmic cameloids' thrown in as an added test.

Other targets include 'deflexors' which send back your own bullets, and a cheeky little being called the 'snitch' who directs the horizontal tracker to fire at you ...

If all this sounds confusing, don't worry, because instructions are supplied to Llamasoft's usual high standards on the packaging – along with the basic story of the Gridwars, which adds interest. The game itself starts with an interesting trailer, and the score and skill levels are clearly displayed along with the hi-score.

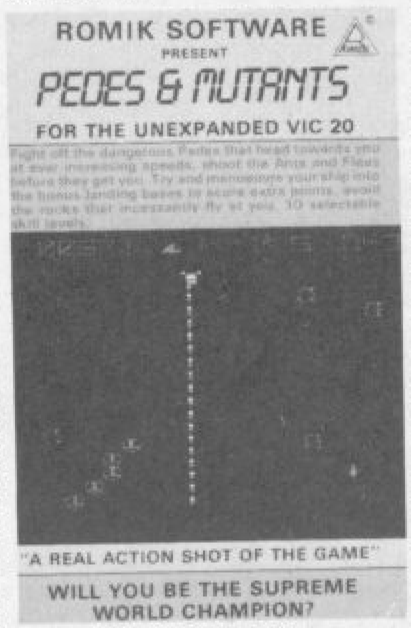
A joystick is required to play this fast all-action game: and going by what the last reviewer of *Gridrunner* said, this game must receive full marks for all four catagories! *RB*

Llamasoft

Presentation:	■■■■■
Skill level:	■■■■■
Interest:	■■■■■
Value for money:	■■■■■

PEDES AND MUTANTS
Vic-20 (Unexpanded)
Keyboard only
Price £6.99

An *Asteroids*-type game where your ship is at the top of the screen and the Aliens and such scroll up towards you. Get the idea? Well, you ain't seen nothin' yet! The speed of attack is incredibly hectic and it's extremely hard to clear your path of Pedes and Mutants and score high points.



It is almost as hard to read the instructions on the screen as the colour contrast is rotten. This might not seem important as the instructions are also on the cassette cover, but I have a thing about unclear screens.

Anyway, loads of ways to score points – both by hitting targets of various Mutant kinds and by dodging bits of space debris. Very complicated, needs lots of practice. The game loads in two parts. The game itself is wildly dramatic, with a cunning intermission that mind-blows you into having another go. The sonics are quite good; and the graphics are very clever, though a bit murky in places.

Definitely one to watch out for, but I have two criticisms: the laser bolt and my ship seemed to get separated if I move too quickly – making a very odd scene as ship and laser moved about the screen with lives of their own. And at the start of the game it is almost too fast to play unless you are really good. For these reasons I would not buy it without a demonstration. *JDC*

Romik Software.

Presentation:	■■■□□
Skill level:	■■■■■
Interest:	■■■□□
Value for money:	■■■□□

QUADRANT
Vic-20 (Unexpanded)
Keyboard or Joystick
Price £6.99

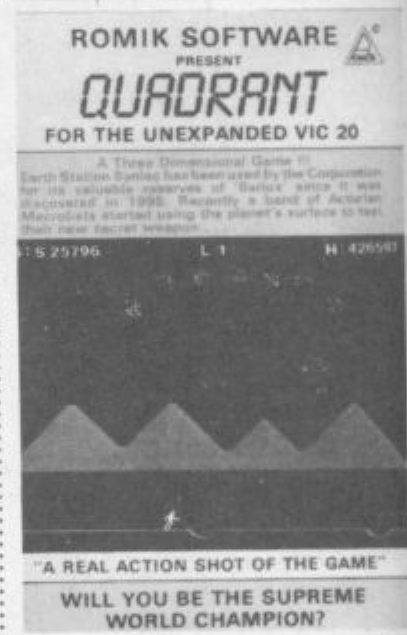
A zap-the-aliens game with a difference – and what a difference! Earth station Synlac is mined for its reserves of precious ore but latterly it has become the testing grounds of the Arcturan Macrobats and their new Trak-Bombs. Life is therefore difficult for the miners: and you, (alias Boris the Galactic Hero) must patrol Synlac's four quadrants, jumping craters and zapping the Macrobats as you go.

Boris takes the form of a little running/jumping/shooting man against a moving planetary surface. It is here that this game is so good; foreground, midground and background move across the screen at different speeds whilst the Macrobats manifest themselves as twirling wire-frame cubes. So what? Well, this clever use of parallax motion and the Necker Cube illusion create an impression of perspective and depth which I found fascinating. Not the three dimensions that Romik claims: but who wants to split hairs? I love it!

To be truthful, there isn't all that much variety in the game; run, jump, shoot, that's all. But it is incredibly engrossing to play. Although I haven't seen any of the true stereoscopic games now out for the Vic I suspect that Romik's use of these simple perceptual tricks may prove more effective than the route taken by companies such as Postern. Now, Romik, how about a 16K version with a bit more variety in the play? *JDC*

Romik Software.

Presentation:	■■■■■
Skill level:	■■■□□
Interest:	■■■□□
Value for money:	■■■■□



VIC-TORIAN FOLLIES Adv. 1
SEAQUEST
VIC-20 (+16K)
Keyboard only
Price £6.95

Seaquest is presented as an adventure game but is really a more conventional graphics game. The keys (What, No joystick option? Rats!) are used to move a sailing ship and to lower a diving bell into the murky depths. An audio detector warns of the presence of treasure, enabling you to position your bell precisely and to hoist the booty aboard to score points. Various hazards keep cropping up in the form of storms, sea serpents and other aquatic horrors, all intent on marring your treasure-seeking.

The game sounds complicated; but the instructions are very good, and after a few minutes it becomes quite easy. Graphics are good, too, though it's all in low resolution and the graphics jerky. The action is too slow and the required skill level too low to hold adult interest for long, but children will probably thrive on it. A save-to-tape option exists, but I can't imagine many people want to use it. *WG/PR*

Novasoft

Presentation:	■■■■□
Skill level:	■□□□□
Interest:	■■□□□
Value for money:	■■□□□

The Forth Page

The complete Forth review?

by Richard G Hunt

This is the third in a series of four articles which look at the programming language Forth, and in particular at its implementations on the Vic-20. This one reviews a book which every student of Forth whether novice or old hand will at one time refer to.

Any subject no matter how esoteric will produce a standard text book. Forth is no exception. And the book that most people will consider as *the* book on Forth is Leo Brodie's *Starting Forth;* undoubtedly it is a valuable contribution to a general understanding of the language.

An alternative must be Alan Winfield's *The Complete Forth* (published by Sigma Technical Press at £6.95). It is cheaper, slimmer and British (the author being a lecturer in the Department of Electronic Engineering at Hull University).

Forth is essentially a portable language. In other words source code written in Forth will compile and run on any computer system that supports Forth. At least, that's the theory: obviously any code in any language that makes use of the operating system or the special characteristics of a given computer will *not* be portable without some effort.

With Forth, though, it doesn't matter so much because if the programmer has knowledge of the purpose of the code he or she is able to define a Forth word that serves that purpose. This is the essence of extensibility and is what can make Forth a specialist's language. I like to think of it sometimes as a DIY language!

Be that as it may, a Forth implementation starts out with certain well-defined characteristics. Other than extensibility, these are use of the stack associated with Reverse Polish Notation (RPN): and a dictionary of 150 to 200 words which form the elementary building blocks of higher-level programs (known in Forth as 'words'). Understanding of these characteristics is the stepping-stone to thinking and writing lucid Forth.

Coming Forth

Alan Winfield's book is subtitled "a new way to program microcomputers" and anyone new to Forth is recommended to take this as a literal statement. Most newcomers to Forth will arrive by way of another high-level language, probably Basic. Forth requires you to have only some idea of the function of a computer and not how that function is realised: put aside Basic statements and step into a looking-glass world where normalcy seems topsy-turvy (or at least backwards-looking) – this peculiar effect is a result of RPN and the stack.

Actually using a stack for all intermediate numeric results demands RPN. Also it is faster in operation: the familiar algebraic ordering system requires interpretation as well. The content of *The Complete Forth* is designed to introduce the beginner in easy stages to RPN and stack manipulation, leading early to examples of Forth words.

Naturally these are stack manipulating words that enhance Forth's arithmetical capability. Indeed I became very much bogged down in Chapter 1 trying to define some stack manipulating words like **((pick)** and **(roll))** which were not implemented on my system.

Gradually more complex ideas are examined and a Forth system and dictionary described. From word definition to Forth structures (conditionals and loops), examples accompany description. Reliance is made on Forth being an interactive language. You don't need to, but it can help if you sit down and enter the words and problems into your own machine.

It is distinctly possible that the maker's handbook is less than explicit, and expert advice can be needed. Winfield comes to the rescue with the chapter on *Editing, Saving and Loading*. A Forth editor is perhaps the most non-standard part of the system. Both Forth implementations I have used on my Vic have different editors: one makes use of natural features (if that is the term) built into the Vic (and other CBM machines) plus some clever use of RAM in lieu of disk.

The other follows more nearly recognisable Forth standards, and I discovered it was fully described in this chapter. Unfortunately as I may have intimated in my earlier review of that cartridge it did not make that particular editor any easier to use!





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GSH

Advanced Forth

The final chapters dwell on more advanced matters: double precision numbers, extending both the dictionary and the Forth compiling capability. As a finale the author provides the listings of two Forth programs which I recommend should be entered whether they are your type of program or not. What can be learned from someone else's code cannot be written down easily.

There are indeed many areas in this book which deserve detailed study and exercise at the keyboard. To the example of extending stack manipulating words I should add extending double precision words. It is eminently satisfying to define a word intellectually and then see that it actually performs as expected (or as hoped!). The book provides the stimulus as well as the material on which to build.

Alas I cannot take credit for all such definitions which I have added to my Forth Definitions. Winfield is kind enough to provide definitions of several of the more useful words, proving beyond doubt that it does not matter which or whose Forth you have – only extend it as you will. Winfield writes to the 79-standard providing footnotes on some of the departures most likely to be seen.

Winfield in his preface states: 'Most of the existing languages suffer serious limitations; Basic is too slow for many applications; yet assembler is not user-friendly, is difficult to learn, and worse still, is limited to one processor. Forth overcomes all of these difficulties to provide a compact and friendly language, with fast execution.'



True. *The Complete Forth* too is compact and friendly. It is also a realtime tool for solving realtime problems – whether such problems are serious or less so again does not matter. Forth words that 'work' do so because they have been correctly compiled. That cannot necessarily be said of Basic statements.

Winfield's book is indeed a new way of looking at programming. It is readable and divided into manageable portions. It teaches, re-inforces and inspires deeper delving. It bears re-reading until the lessons have rooted. Then you are on your own – Forth is bounded only by the memory available to your machine. At £6.95 'The Complete Forth' is a worthwhile investment.

The Book: The Complete Forth
The Author: Alan Winfield
The Publisher: Sigma Technical Press
The Price: £6.95
The Reviewer: Richard Hunt
The Conclusion: A good (and British!) introduction

Go with Gortek

An easy way into Basic on the Vic

by Bohdan Buciak

Teaching young people Basic programming can be difficult if those same children have been using their home computers exclusively for playing games. So three English schoolteachers have devised Gortek and the Microchips, a set of programs that try to combine learning with game-play.

Commodore now markets it as a package containing two cassettes and a Training Manual. It costs £12.99 and looks pretty glossy and attractive. But is it informative? And how much real fun are Gortek and his Microchip friends?

First let us introduce Gortek, that staunch robot-like figure with the large worried eyes. Why worried? Because his planet, Syntax, is under threat of invasion from the nasty Zitrons. If they succeed, they'll destroy the all-powerful computer, Creativity, which Gortek guards along with his band of Microchips. You must learn to program along with the Microchips to repel the Zitrons and preserve Creativity. Sounds like being fun? Definitely, so load up the first program.

A rather simple game called *Zitrack* sets the course rolling. The Zitrons are attacking with that devious weapon, alien letters. As they fall, you must press the corresponding letters on the keyboard to destroy them. So zapping can be educational; a few minutes of that and you've miraculously learned a little about keyboard layout. Not much in the way of graphics, though. And that regrettably goes for all the games.

The next game counters another dastardly Zitron ploy. This time they're duplicating passwords to try and land. Trouble is, they can't spell so you zap the incorrect words to keep them out. Ah, so correct syntax is essential in programming? Maybe that point was too subtle - it's never really articulated.

Manual labour

Having done a little game playing, you're brought back to the appropriate page in the manual. After a little work, you're told to take a break and load up another game. This is the general pattern; you alternate between screen and book so the learning part never gets too strenuous. But what have you learnt by the end of the first tape?

Well, you've become more familiar with the keyboard. One of the games, *Flog*, has demonstrated the computer's ability to add and subtract. You've written a little program and learned some basic commands which the Manual very sensibly lists as a recap.

A few symbols for PRINT statements have also appeared which proved slightly more tricky; you're suposed to find out for yourself what the symbols do. There are answers in the back, but one gripe is that the 'heart' symbol isn't explained. So you've learned some of the basic stuff, and there's more to come.

But back to the Zitrons: they're now preparing to land on Syntax to sabotage Creativity, so training must go on. The manual comes up with these exhortations regularly but it does warn you against jumping ahead too quickly. That's wise because it's all getting more complicated.

Boxes of Variables

You've now reached the second tape and about a third the way into the Training Manual. The first program on the tape is called *Boxes* which corresponds with the page on variables. The book doesn't use this term but it *does* impart the idea that a computer stores information, whether numbers or letters, in a 'box' labelled with a letter. It explains the dollar sign too as the indicator for alphanumeric variables, and uses the game to test your comprehension.

Having grasped that, you key in a program using string variables from the manual. Again, the book dispenses with the technical terms probably because they may confuse the tender of age. What's probably more confusing is not knowing how to correct lines when you get a syntax error on running the program. The Training Manual surprisingly neglects to explain this point, so you'll need to browse through your User Manual, earning you extra points for initiative.

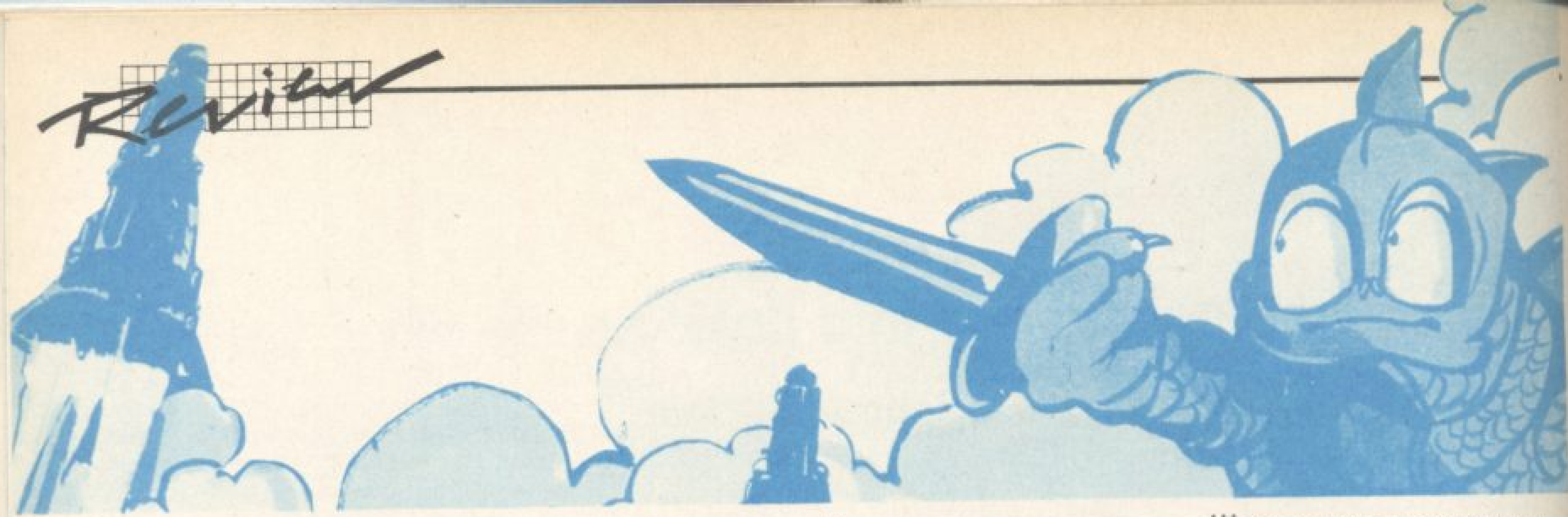
Despite that, the book is generally very good. It's colourful, well-illustrated and uses bold print. The program listings are clear and easy to follow. The course has been designed so that more use is made of the manual as you progress, and it's never patronising either.

Back to the great task, though. The manual now looks at multiplication and gives examples of programs that print out multiplication tables. But if that's too academic for you, a flip over the page takes you to the computer art section. There's a program for this on the tape which sounds good but, in fact, it is quite boring when you run it. Since the manual gives listings of alternative designs, you'll probably be inspired to create something more imaginative.

But what's Gortek been doing all this time? You've probably guessed that the Zitrons aren't very artistic so learning a little about design is part of his counterplot. The next step is



Deep underground in the fathomless caverns of SYNTAX, the all powerful, all knowing, perpetual computer CREATIVITY resides. It lives on the imagination of life, fulfilling the many problems of the vast universe, protected by Gortek and the Microchips.



programming Creativity (the computer, if you'd forgotten) to be friendly. That sounds reasonable too, because "a smile generates a smile" chortles the manual in its usual happy tone. That should confuse the Zitrons. Meanwhile, you run the Conversations program and have a nice chat with the computer.

Playing with Zitrons

That theme is expanded in the manual, which lists an example of an interactive arithmetic program for you to play around with. This is where the division sign is introduced. But we're almost near the end and the Zitrons have landed, only to be mesmerised by the next program you've just loaded. Of course, the object is that you help the Zitrons play – to make them forget their destructive instincts.

But that's not enough; you've got to write new programs to keep them occupied. So the last two pages are designed to test the programming knowledge you've gained. Whether you profited from the experience or not, it all ends happily. You've convinced the misanthropic Zitrons that "there is something better in life than destruction" and that "computing is fun". Could thaat be a side-swipe at space-invader zapping?

Conclusion

Young people reaching the end of this course will, no doubt, gain a sense of achievement even if they're already beginning to forget what was initially learned. That doesn't matter because they can do it all again, or any of it's large variety of parts. This is a clever package, partly because it encourages children to find things out for themselves. Being based around a story, it holds interest far better than most educational programs. It's a good story too, and only the first in a series – Gortek and the Kryptobytes is coming soon.

Under review:	**Gortek and the Microchips**
Description:	**Basic tutorial for kids**
Supplier:	**Commodore Business Machines (via dealers)**
Summary:	**Fun, effective – good value**
Price:	**£12.99**

Vic Scrolling

by Barry O'Rourke
Irish Amateur Computer Club

Scrolling on the Vic is normally available only in one direction – up. The text on the screen moves up if you print anything on the last line.

The short Basic program below enables scrolling down. If text is printed on the second line of the screen and line 10000 is called, the whole screen (with the exception of most of the first line) is scrolled down one line.

```
10   A$ = "" FOR T = 0 TO 18: A$ + A$ + CHR$ (29):
     NEXT
12   A$ = CHR$ (19)+A$ + CHR$ (160) + CHR$ (157) +
     CHR$ (157)
14   A$ = A$ + CHR$ (157) + CHR$ (157) + CHR$ (148)
     + CHR$ (148) + CHR$ (148)
1000 REM SCROLL DOWN
1010 PRINT A$:POKE 217, 158: POKE 218, 158
```

GOTO variable

by Barry O'Rourke
Irish Amateur Computer Club

As a GOTO must be followed by a number on the Vic or 64 – going to a particular line with a statement like "GOTO X+24*2" was impossible. Until now, that is.

The program below provides a full GOTO X command. It uses the form SYS *location, formula* where 'location' is the address in memory of the routine and the value of 'formula' is the required line number. Of course you must check that the line number does exist, otherwise you'll get an UNDEFINED STATEMENT ERROR.

```
10   FOR T = 0 TO 11: READ A: POKE 736 + T,A: NEXT
20   DATA 32, 253, 206, 32, 158, 205, 32, 247, 215, 76
30   DATA 163, 200.
```

Then you can use **SYS 736,** *line number.*

Subroutine printer

by Lenton Goforth

We spotted this useful-looking routine from Californian Lenton Goforth in an issue of the Commodore USA house magazine Power:Play. It's reprinted with thanks to author and editor.

In the process of writing a very long program, I needed a way to list the separate subroutines on the printer. Luckily, I had room for a routine to do this. Here's how it works.

When run, the program asks for three inputs from the user: title of routine, starting line number and ending line number. The listing of this routine is a sample output. Notice that the line numbers are included in the title.

First, leave room somewhere for the routine in your program. I chose to put it at the very beginning and call the routine simply by typing RUN. If I want the rest of the program to run, then I type RUN 100.

Then answer the prompts. When the screen clears and the printer stops, hit RETURN. When the printer stops again, hit RETURN to close the file.

Printer Routine

```
5 PRINT"[CLEAR,DOWN4]"
10 PRINT"[RVS]PRINTER[SPACE]OUTPUT[RVOFF]"
20 PRINT:PRINT"PAGE[SPACE]TITLE";:INPUT PT$
25 PRINT:PRINT"STARTING[SPACE]LINE[SPACE]
   NUMBER";:INPUT SL
30 IF SL=0 THEN 25
35 PRINT:PRINT"ENDING[SPACE]LINE[SPACE]
   NUMBER";:INPUT EL
40 IF EL=0 THEN 35
45 PRINT"[DOWN3,SPACE5]PLEASE[SPACE]ADJUST
   [SPACE]PAPER[SPACE]IN[SPACE]PRINTER"
50 PRINT"[DOWN]HIT[SPACE,RVS,SPACE]F1[SPACE,
   RVOFF,SPACE]WHEN[SPACE]READY"
55 GET A$:IF A$=""THEN 55
60 IF A$<>CHR$(133)THEN 50
65 OPEN 4,4,0:CMD 4:PRINT CHR$(14);"[SPACE3]
   "PT$;"[SPACE6]LINES"SL"-"EL;CHR$(15)
70 PRINT#4:CLOSE 4
72 PRINT"[CLEAR,DOWN7]"
75 PRINT"OPEN4,4,6:CMD4:LIST"SL"-"EL
80 PRINT"PRINT#4,:CLOSE4"
85 PRINT"[UP6]";
90 PRINT"[SPACE3,RVS,SPACE3]HIT[SPACE]RETURN
   [SPACE3]"
95 END
100 REM **** START OF REST OF PROGRAM ****
```

PULL OUT

COMMODORE user

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Welcome to DEALS FOR READERS, a collection of Special Offers from Commodore User magazine.

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In the December issue you'll find a review of Simons' Basic, the 'official' Commodore cartridge that provides extensions to the 64's standard Basic. We compare it with a tape called BC BASIC that does much the same kind of thing; and BC BASIC came out so well that we subsequently fixed up a discount deal for readers.

BC BASIC provides a set of extra commands for graphics, sound, I/O and miscellaneous programming. We concluded that it's much more professional than Simons' Basic, and since it's considerably cheaper it is much better value for money — especially at our price! Simon's Basic is £50; BC Basic normally sells at just £19.95, and you can order it from us at £17.95.

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VIC: ALL YOU NEED TO KNOW

VIC 20 User Guide by John Heilborn and Ran Talbott, published by McGraw-Hill.

There are dozens of books about the Vic. But this one is the best all-rounder we've come across. Not cheap, maybe: but you get a beefy large-format paperback of 387 pages, packed with information and beautifully presented with professional illustrations and clear listings.

Ideal for beginner and expert alike. Hand-holding intro to the Vic; but also includes 'how to use' sections on disk and printer as well. Excellent on graphics and animation, on writing games, on sound (eg a good chunk on combining sound and animation).

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GET INSIDE THE 64

Commodore 64 — getting the most from it by Tim Onosko, published by Prentice-Hall.

Terrific value, especially at the price — 303 large-format paperback pages, a 'from the ground up' all-purpose manual/tutorial/reference for the 64 (genuinely the best we have found to date). Junk the Commodore-supplied user manual and get stuck into this: concise and sensible, clear presentation, well-written. Appendices include substantial contributions from Butterfield on the 64's memory and excellent exposés of sound and graphics.

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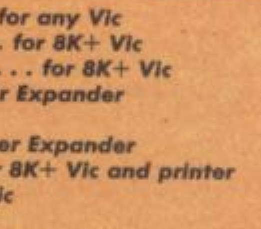
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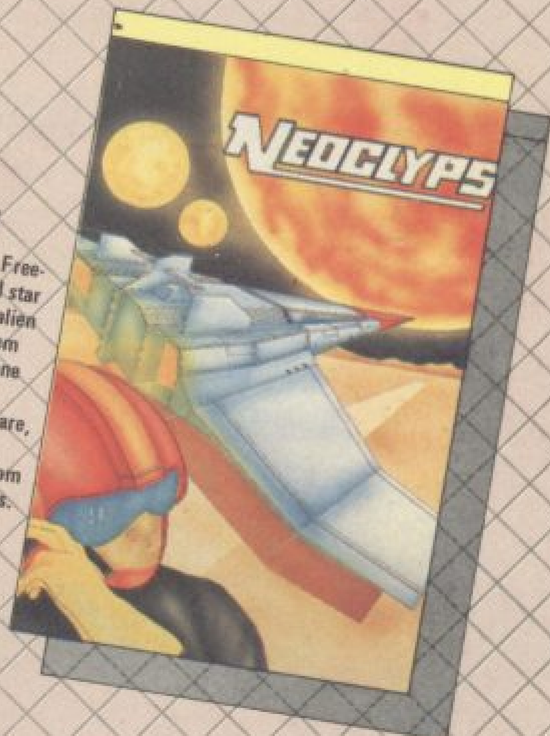
The object of this game is to blow up submarines, destroy the helicopter and catch the falling pilot, but do not kill the whale.

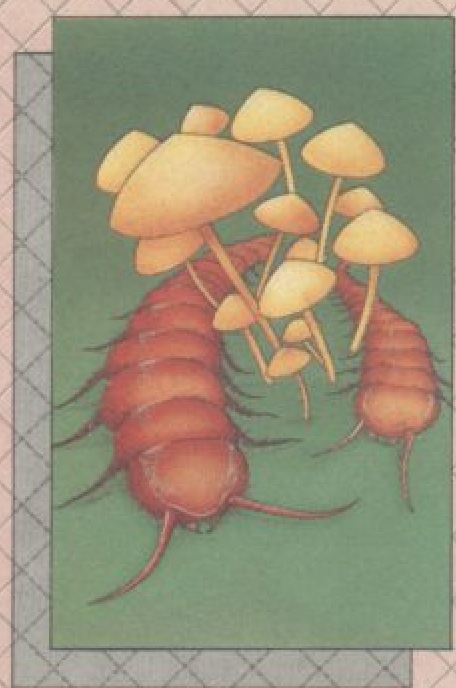
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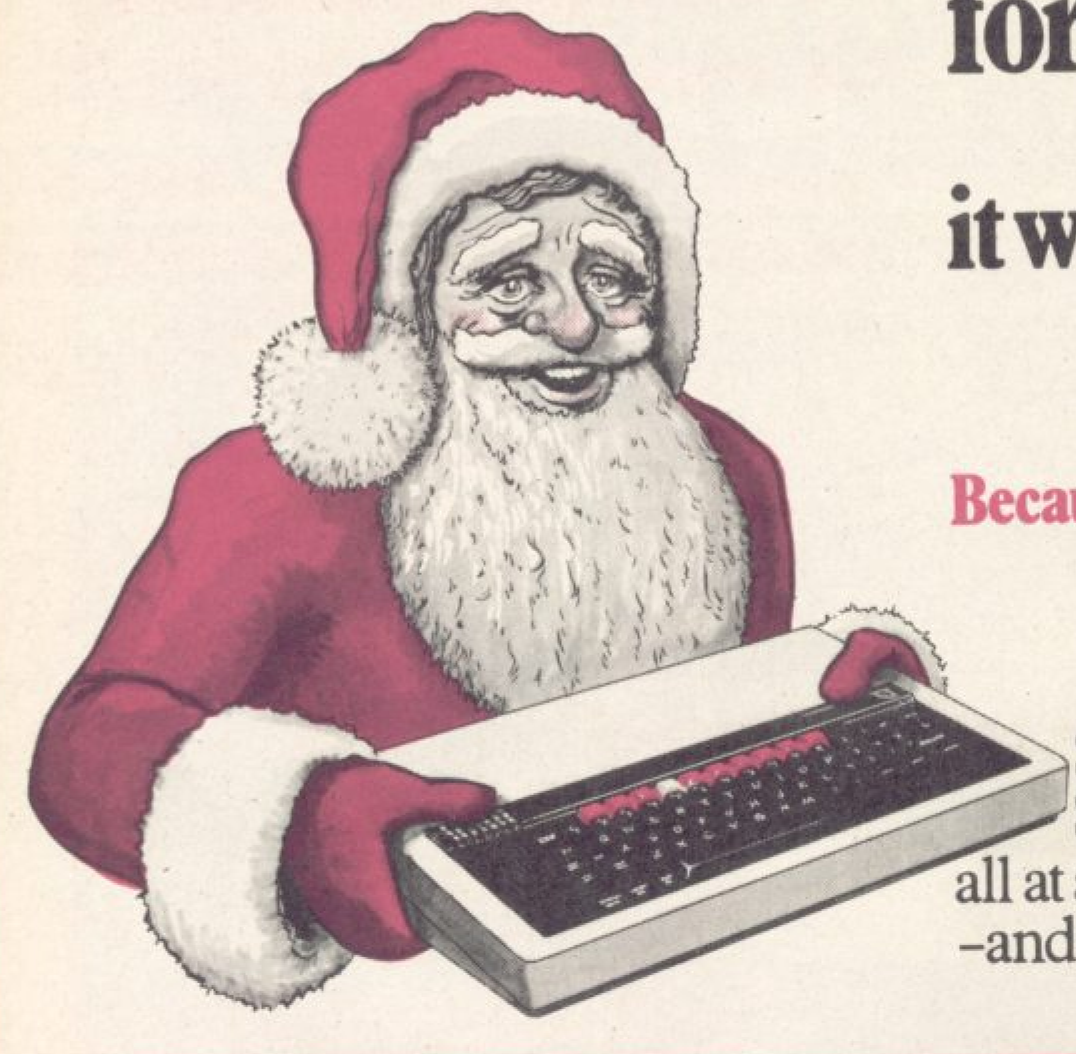
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Vic Key Programmer

by Jonathon Reynolds

```
0 REM *** KEY PROGRAMMER ***
1 REM (C)1983 JONATHON REYNOLDS
10 POKE56,28
11 POKE55,212
12 CLR
13 PRINT"J▩▩▩▩RUNNING"
14 DATA7380
15 DATA20,F9,CB,A2,00
16 DATABD,00,02,C9,31
17 DATAD0,05,A9,A8,4C
18 DATA27,1D,C9,32,D0
19 DATA05,A9,B3,4C,27
20 DATA1D,C9,33,D0,05
21 DATAA9,BE,4C,27,1D
22 DATAC9,34,D0,05,A9
23 DATAC9,4C,27,1D,C9
24 DATA35,D0,05,A9,D4
25 DATA4C,27,1D,C9,36
26 DATAD0,05,A9,DF,4C
27 DATA27,1D,C9,37,D0
28 DATA05,A9,EA,4C,27
29 DATA1D,C9,38,D0,05
30 DATAA9,F5,4C,27,1D
31 DATA4C,D4,1C,8D,30
32 DATA1D,A2,00,BD,01
33 DATA02,9D,A8,1D,E8
34 DATAE0,0A,D0,F5,60
35 DATA78,A9,45,8D,14
36 DATA03,A9,1D,8D,15
37 DATA03,58,60,A5,D7
38 DATAC9,85,D0,05,A9
39 DATAA8,4C,92,1D,C9
40 DATA86,D0,05,A9,BE
41 DATA4C,92,1D,C9,87
42 DATAD0,05,A9,D4,4C
43 DATA92,1D,C9,88,D0
44 DATA05,A9,EA,4C,92
45 DATA1D,C9,89,D0,05
46 DATAA9,B3,4C,92,1D
47 DATAC9,8A,D0,05,A9
48 DATAC9,4C,92,1D,C9
49 DATA8B,D0,05,A9,DF
50 DATA4C,92,1D,C9,8C
51 DATAD0,05,A9,F5,4C
52 DATA92,1D,4C,BF,EA
53 DATA8D,98,1D,A2,00
54 DATABD,A8,1D,C9,00
55 DATAF0,07,20,D2,FF
56 DATAE8,4C,97,1D,4C
57 DATABF,EA,**,**,**
58 FORI=7592TO7679
59 POKEI,0
60 NEXT
61 READL
62 READA$
63 C=LEN(A$)
64 IFA$="**"THEN74
65 IFC<1ORC>2THEN73
66 A=ASC(A$)-48
67 B=ASC(RIGHT$(A$,1))-48
68 N=B+7*(B>9)-(C=2)*(16*(A+7*(A>9)))
69 IFN<0ORN>255THEN73
70 POKEL,N
71 L=L+1
72 GOTO62
73 PRINT"BYTE"L"▮=′"A$"′ ?":END
74 PRINT"J▩▩▩▩TASK COMPLETED.▩"
75 PRINT" SYS 7480 TO START."
76 PRINT" SYS 7380 TO  PROG.▩"
77 PRINT"FORMAT:▩"
78 PRINT"? 2PRINT"
79 PRINT,,"DONT WORRY IF YOU GET   A ′SYNTAX ERROR′."
80 END
```

We've had a number of requests for a program or routine that allows you to allocate text strings to particular function keys. Well, Jonathon Reynolds has obliged with this handy little number for a Vic with any expansion.

When you RUN it, the machine code is loaded into a chunk of memory at the top of Basic. SYS 7380 lets you define the function keys one by one, using the key number followed without a space by the text you want to appear when that key is subsequently pressed. You can assign up to ten characters to each of the eight function keys – enter any more and the Vic will ignore the remainder. (You can't try for four more function keys by using the CBM key as a second shift.)

Thereafter you SYS 7480 – and voila! Pressing a function key puts your assigned text on to the screen. Very useful for common Basic keywords, of course, and easy enough to incorporate into a program as a routine.

How we reproduce listings

We usually put our listings for Victuals and other programs through a code conversion program that replaces the hieroglyphic Commodore colour and screen control symbols with a more meaningful set of commands.

When you see...	It means ...	And you ...
[CUP]	cursor up	press the 'cursor up' key
[CUD]	cursor down	press the 'cursor down' key
[CUL]	cursor left	press the 'cursor left' key
[CUR]	cursor right	press the 'cursor right' key
[HOM]	cursor to the top lefthand corner	press the HOME key
[CLR]	clear	press the CLR key
[INS]	insert	press the INSert key
[BLK]	change to black	press the BLK key (shifted 1)
[WHT]	change to white	press the WHT key (shifted 2)
[RED]	change to red	press the RED key (shifted 3)
[CYN]	change to cyan	press the CYN key (shifted 4)
[PUR]	change to purple	press the PUR key (shifted 5)
[GRN]	change to green	press the GRN key (shifted 6)
[BLU]	change to blue	press the BLU key (shifted 7)
[YEL]	change to yellow	press the YEL key (shifted 8)
[RVS]	reverse on	press the RVS ON key (shifted 9)
[RVO]	reverse off	press the RVS OFF key (shifted 0)
[SPC]	space	press the space bar
X followed by a number		repeat the specified number of times

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C01 BALLOON RESCUE £7.95
Fuel level low. Time running out. Collect fresh fuel to stay in the air or plunge to certain agonising death.

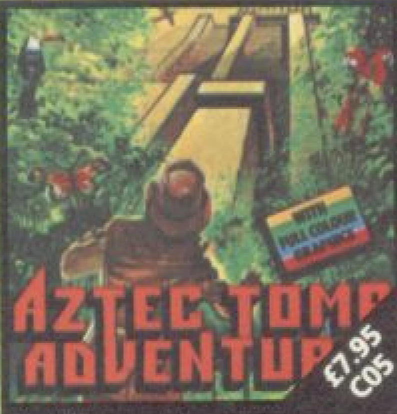
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The £1,000 Competition runs in three parts, and you'll need correct answers to all three to stand a chance. You will also need the cut-off coupon from the bottom of the Competition Page: all the entries MUST be accompanied by the coupons and the Entry Form that we'll have on the third and last Competition Page in April. So don't lose this issue!

Part Two appears below. Put your answers on a separate sheet of paper, cut out the coupon, and keep the two items somewhere safe. Part One was in the February issue; Part Three and the Entry Form appear in April.

PART TWO: THE £1,000 CREATIONS

This section of the Competition is really easy. All you have to do is describe **THREE** game scenarios – in other words, come up with three interesting games for the Vic or 64 and describe what would (or could) happen.

You should always specify the hardware that would be needed – Vic or 64, joysticks, whatever. But keep it reasonable; the winning entries will be games that could be programmed and could be used by most readers.

Each entry will be rated by us on the following criteria:

A how *original* is the idea?
B how *interesting* would the game be?
C is enough *detail* included in the description?
D how *feasible* would it be to program?

Note that we don't want you to write the programs, just to *describe* the games. But you will have to be aware of some of the technical constraints – like will your scenario fit into memory?



£1,000 COMPETITION

PART TWO

Caterpillar



by Pauli Terho



Don't confuse this game for the Vic with the arcade quest of the same name – it's very different. You have to guide the amiable multiped to food in the form of leaves; and a new leaf appears only after one has been eaten.

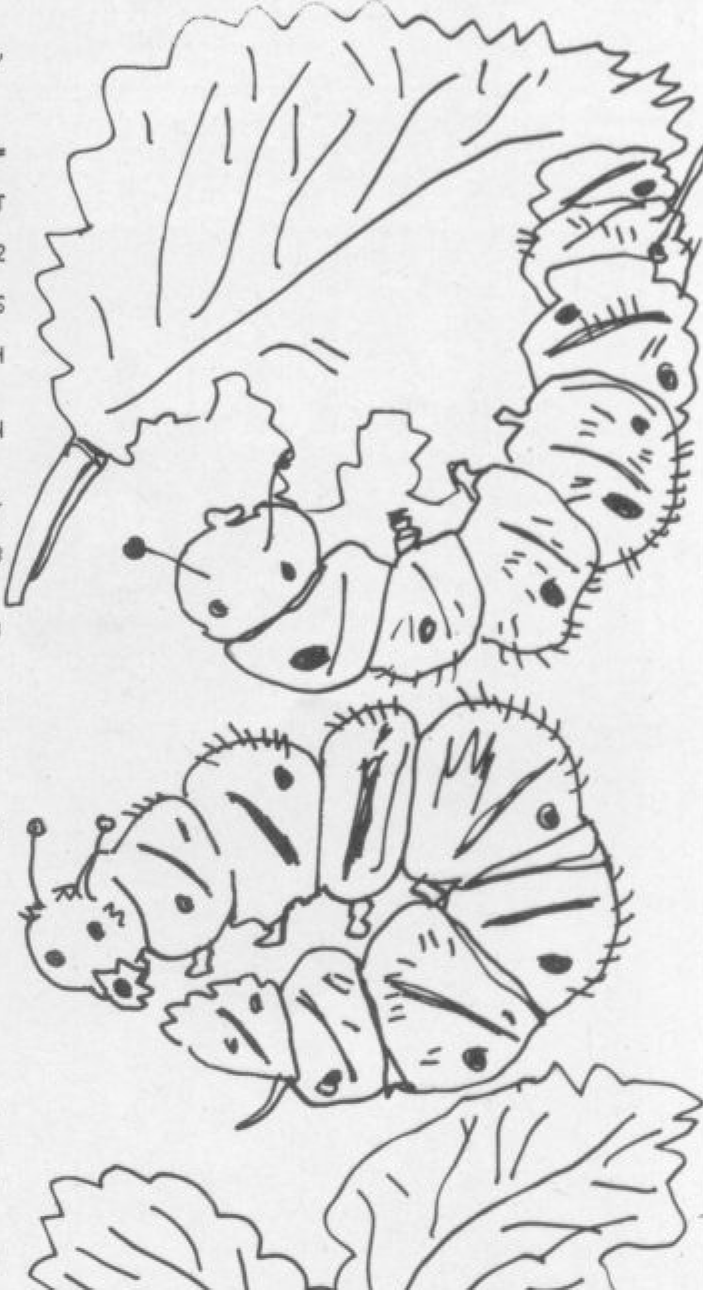
But as you move along the caterpillar gets larger; and as the caterpillar gains weight, it becomes more and more difficult to stop the thing eating itself (well, no-one has ever claimed any great degree of intelligence for the average caterpillar) or from bumping into the sides of the screen.

The ket controls are frankly awkward and could easily be improved. But even as it stands this is a good game ...





```
1 DATA126,255,255,255,255,255,255,126
2 DATA152,252,62,126,127,127,127,63
3 DATA25,127,124,254,254,254,254,108
4 DATA25,63,124,126,254,254,254,252
5 DATA152,254,62,127,127,127,62,54
6 DATA231,60,126,153,221,221,255,126
7 DATA231,60,126,153,189,189,255,126
8 DATA231,60,126,153,187,187,255,126
9 DATA126,255,189,189,153,126,60,231
10 POKE 55,142: POKE 56,29: POKE 36879,8: POKE 36865,255: POKE 37148,0: GOTO600
20 FORX=1TO22: PRINT "[RVS][PUR]-[BLU]"; : NEXT: RETURN
21 CLR: POKE 36967,255: A%(2)=1: A%(0)=-1: B%(3)=-1: B%(1)=1: DEFFNA(X)=7680+X+2
2*Y
25 DEFFNB(B)=7680+A+22*B: E=5: PRINT "[CLR][BLK][RVS]------SCORE 0---------
30 DEFFNC(C)=7680+C+22*D: A=10: B=1: R=1: POKE 7712,52: POKE 8020,55: POKE 38740
,12-E
35 O=254: X=10: Y=1: C=-1: POKE 36879,26: GOSUB800: POKE 198,0
40 GETI$: IFI$=""THEN120
60 W=ASC(I$): R=R+(W=133)-(W=95): R=R+4*(R=4)-4*(R<0): POKE FNA(X),R+59
120 Q=Q+1: IFQ=5THENQ=0: O=RND(0)*76+178: GOTO190
130 T=PEEK(FNB(B))-51: POKE FNB(B),50: B=B+B%(T): A=A+A%(T)
190 POKE 36877,O-Q*5: X=X+A%(R): Y=Y+B%(R): POKE 36877,0: IFX>21ORX<0ORY>22ORY<1
THEN300
230 IFPEEK(FNA(X))>50THEN250
240 POKE FNA(X),59+R: POKE 30720+FNA(X),0: POKE FNC(C),51+R: POKE 30720+FNC(C),E
: C=X: D=Y: GOTO40
250 T=PEEK(FNA(X)): IFT<55THEN300
260 W=INT(RND(1)*483)+22: IFPEEK(7680+W)>50THEN260
263 POKE 7680+W,55+RND(0)*4: POKE 38400+W,12-E: FORT=250TO201STEP-7: POKE 36876,
T: NEXT
264 POKE 36876,0: P=P+5+U: IFP>=50*2↑UTHEN700
265 PRINT "[HOM][RVS]",P: GOTO240
300 R=PEEK(251)*9+PEEK(252): IFP>RTHENR=INT(P/9): POKE 251,R: POKE 252,P-R*9: R=
P
305 FORW=0TO15: POKE 36874,202-W*5: POKE 36878,15-W: POKE 36865,37+(1ANDW): NEXT
: POKE 36878,2
310 FORA=0TO5: FORB=0TO3: FORW=1TO10+A: POKE 36877,254-A*3-W: NEXT: POKE 36879,2
6+B
320 POKE FNC(C),59+B+(B=3)*2: NEXT: POKE FNC(C),60: NEXT: FORW=100TO127: POKE 36
877,127+W: NEXT
330 FORW=0TO127: POKE 36877,254-W: NEXT: PRINT "[HOM][RVS]-SCORE"; -P"[CUL]---[H
OM]","-HI-SC"; -R
400 FORW=1TO3: FORX=1TO1000: IFPEEK(203)=63THENCLR: GOTO21
500 NEXT: POKE 214,19: PRINT "[CUD][RVS][CUR]PRESS[CUR][F7][CUR]TO[CUR]START": N
EXT: GOTO620
600 FORX=0TO11: W=W+1: IFW<5THENRESTORE
610 FORY=0TO7: READA: POKE 7576+Y+X*8,A: NEXT: NEXT: FORY=0TO7: READA: POKE 828+
Y,A: NEXT
620 FORX=7567TO7567+8: POKE X,0: NEXT: X=RND(-TI): CLR: POKE 36869,255: POKE 368
65,38: GOSUB900
630 PRINT "[CLR][BLK][RVS][CUD] INSTRUCTIONS:
635 GOSUB20: PRINT "[GRN][RVO][CUR]7[CUR][BLU][RVS]... 5 POINTS+BONUS "; : GOSUB
20: PRINT " ADVANCE BONUS AFTER
640 PRINT "[RVS] 50,100,200 & 400 PTS "; : GOSUB20: PRINT " WHEN THE BONUS
645 PRINT "[RVS] IS ADVANCED,IT GIVES YOU  1 POINT FOR EACH"," PART OF THE WORM"
: GOSUB20
650 PRINT " THE WORM GROWS[CUD]WITH[CUR][CUR][CUR][CUR]CONSTANT SPEED": GOSUB20:
 PRINT " THE HIGHEST SCORE
655 PRINT "[RVS] TODAY IS"PEEK(251)*9+PEEK(252)"POINTS": GOSUB20
656 PRINT "[PUR]USE THESE KEYS TO PLAY:[CUR][CUR][CUR][CUR][CUR][CUR][BLK][+][CY
N][CUD][CUL]—' ⌐[CUP][CUL][CUL][CUL]↑↑[BLK][F1]
657 PRINT "[CUD][RVS] [BLK]HIT [F7] TO START[HOM]"
660 FORT=1TO3000: IFPEEK(197)=63THEN21
670 NEXT: GOSUB800: GOTO660
700 POKE FNA(X),50: POKE 38400+W,E: P=50*2↑U
710 PRINT "[HOM][RVS][CUR][CUR][CUR][CUR][CUR][CUR]BONUS"P: U=U+1: O=PEEK(198):
GOSUB800: POKE FNC(C),60: E=12-E: IFU>3THENE=6
720 FORW=1TO5: FORZ=0TO3: POKE 36879,24+U+Z: FORT=1TO70: NEXT: NEXT: NEXT
730 W=A: Z=B
740 T=PEEK(FNB(B))-51: IFT>7THEN750
741 POKE 30720+FNB(B),E: B=B+B%(T): A=A+A%(T): FORL=0TO20STEP2: POKE 36876,220-L
: NEXT: P=P+1
742 PRINT "[HOM][RVS]",P: GOTO740
750 FORT=200TO127STEP-1: POKE 36876,T: NEXT: POKE FNB(B),59+R: FORT=200TO254: FO
RL=0TO5
755 POKE 36876,T-L: NEXT: NEXT
760 POKE 36876,0: A=W: B=Z: POKE 198,1: PRINT "[HOM][RVS][CUR][CUR][CUR][CUR][CU
R][CUR]SCORE": POKE 198,0: O=254: GOTO240
800 W=RND(-PEEK(828+INT(RND(0)*8))): FORW=1TO7: T(W)=INT(RND(1)*100)+140: NEXT:
FORW=0TO1
```



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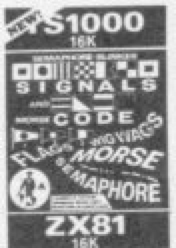
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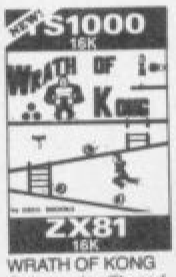
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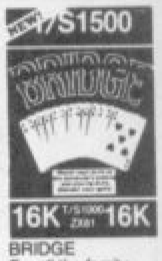
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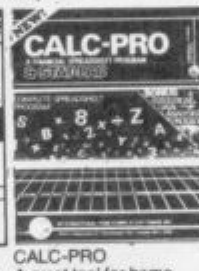
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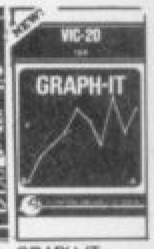
FASTLOAD
Learn any programme up to 6 times faster than normal! By Dr G. Pearson.
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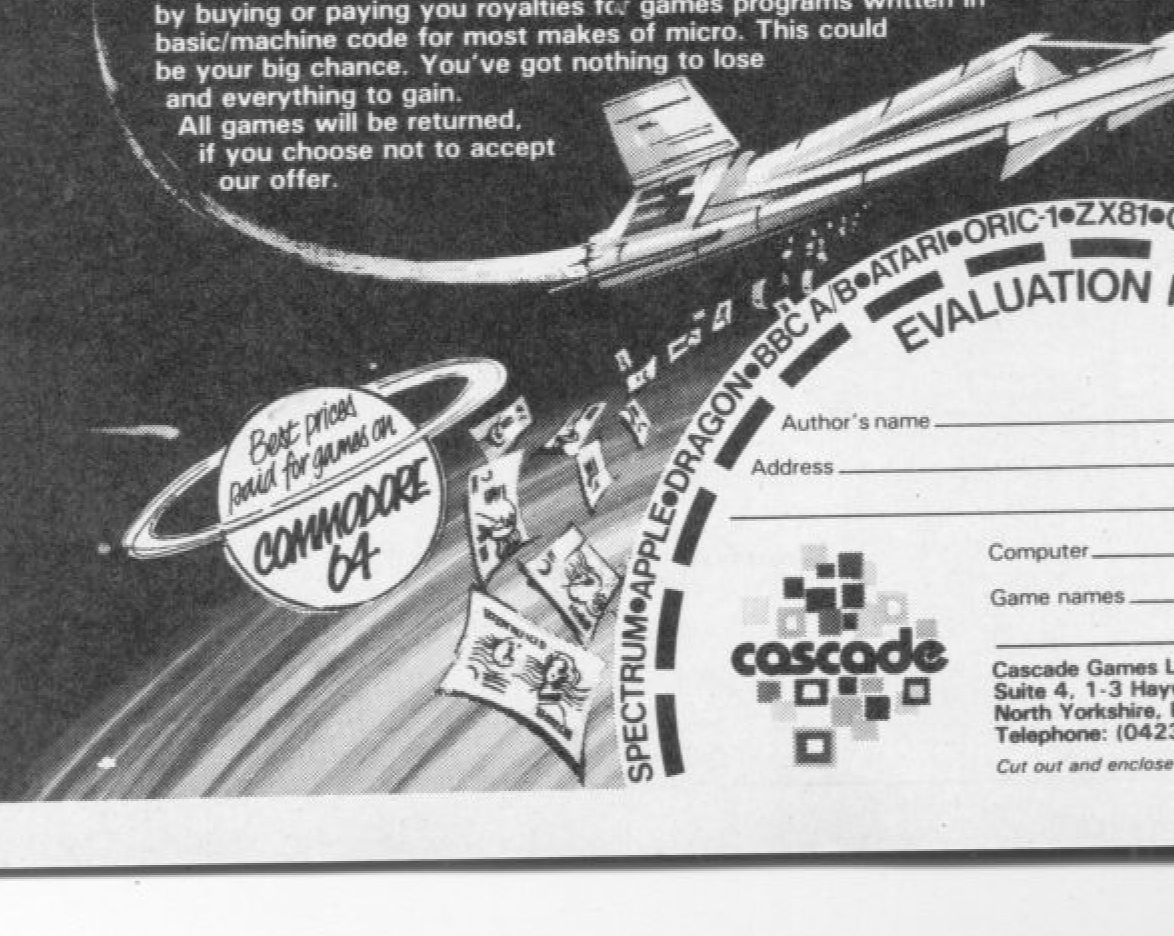
CU 3/84

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CU

Caterpillar

```
801 FORZ=1TO7: POKE 36876,T(Z): POKE 36875,T(Z): FORT=15TO0STEP-1: POKE 36878,T:
 NEXT: NEXT: NEXT
802 POKE 36876,0: POKE 36875,0: POKE 36878,15: RETURN
803 DATA50,70,81,82,86,178,174,247
900 POKE 36879,28: PRINT "[CLR]": FORT=1TO200: W=INT(RND(0)*493)+22
930 POKE 7680+W,55+RND(1)*4: POKE 38400+W,RND(1)*6+2: NEXT
940 PRINT "[CUD][CUD][CUD][CUD][CUD][CUD][CUD][CUR][CUR][CUR][CUR][GRN]333333333
3333","[CUR][CUR][CUR][CUR][BLK][RVS] CATERPILLAR[RVO][GRN]3","[CUR][CUR][CUR][C
UR]3333333333333"
950 PRINT "[CUR][CUR][CUR][CUR]3[BLK][RVS]BY PAULI.T. ","[CUR][CUR][CUR][CUR][GR
N][RVO]3[RVS][BLK]SWEDEN 1983 ","[CUR][CUR][CUR][CUR][RVO][GRN]3333333333[BLK]
(
980 POKE 36877,255: FORX=15TO0STEP-1: FORY=1TO30
990 POKE 36878,X+X/2*INT(RND(1)>.7): NEXT
999 NEXT: POKE 36874,0: POKE 36877,0: FORT=1TO5000: NEXT: RETURN
4167 REM*** "██████████-----------------------[SPC5]CATERPILLAR[SPC10]BY PAULI TER
HO
8923 REM*** "██████████[SPC5]SWEDEN 1983
```

Beekeeper

by B M Phillips

One for the sweet tooth – in this Vic game for keyboard or joystick you're the eponymous beekeeper with a garden all to yourself. Your job is to collect honey from the beehives and fill your honeypot.

Problem is the bees. They aren't standing (flying?) still for the blatant theft of their hard work; and they have stingers ...

Evade the bees, fill the honeypot, and you can go on to the next skill level.



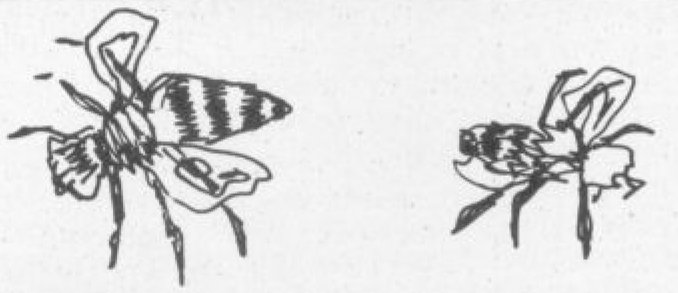

```
*** BEEKEEPER1 ***

10 POKE 36879,13
20 PRINT "[CLR][CUD][CUD][CUD][CUD][CUD][CUD][CUD][CUD]"
30 PRINT "[CUR][CUR][CUR][WHT][RVS][SPC16]"
40 PRINT "[CUR][CUR][CUR][RVS]  PLEASE WAIT   "
50 PRINT "[CUR][CUR][CUR][RVS][SPC16]"
60 POKE 52,28: POKE 56,28: CLR
70 FORI=7168TO7679: POKE I,PEEK(I+25600): NEXT
80 FORC=7432TO7511: READA: POKE C,A: NEXT
90 DATA0,0,16,48,12,8,0,0
100 DATA0,0,8,12,48,16,0,0
110 DATA16,56,16,124,146,40,40,108
120 DATA16,56,146,124,16,40,68,130
130 DATA40,124,124,124,56,16,16,16
140 DATA16,56,124,124,56,16,16,16
150 DATA16,56,60,92,116,92,56,16
160 DATA0,126,126,126,126,126,126,0
170 DATA16,0,56,0,124,0,254,254
180 DATA126,126,24,60,126,126,126,126
190 PRINT "[CLR][WHT][CUR][CUR][CUR][CUR][CUR][CUD]BEEKEEPER"
200 PRINT "[YEL][CUD][CUR]YOU ARE A BEEKEEPER   AND YOUR JOB IS TO[SPC4]COLLECT
THE HONEY "
210 PRINT "[CUR]FROM THE HIVES AND[SPC4]BRING IT BACK TO THE  HONEY  POT."
220 PRINT "[CUD][CUR][GRN]ONE PROBLEM-THE BEES"
230 PRINT "[CUR].....THEY STING!"
2 ` PRINT "[RED][CUD][CUR][RVS]PRESS SHIFT/RUN TO "
250 PRINT "[CUR][RVS]LOAD MAIN PROGRAM  [WHT]"

*** BEEKEEPER2 ***

10 DIMJS(2,2)
20 POKE 36879,200
30 PRINT "[CLR][CUD][CUR][CUR][CUR][CUR][CUR][BLK]BEEKEEPER"
40 PRINT "[CUD][CUD][CUD][CUD][CUD][CUR][CUR][CUR][CUR][CUR][CUR][RVS][BLU]SELEC
T"
50 PRINT "[CUD][CUD][CUR][CUR][RED][RVS]K[RVO]EYBOARD(S X . /)"
60 PRINT "[CUR][CUR][CUD][RVS]J[RVO]OYSTICK"
70 GETG$: IFG$="J"ORG$="K"THEN90
80 GOTO70
90 G=1: IFG$="J"THENG=2
100 POKE 36869,255
110 P1=8164: P2=38884: SC=0: T=0: HN=0
120 FORI=1TO8: B%(I)=33: NEXTI: FORI=1TO8STEP2: B%(I)=34: NEXTI
130 M1=35: M2=36: F=45: S2=36875: V=36878: S1=36877: LV=1: BS=4: LE=0
140 GOSUB680: GOSUB700
150 POKE 37139,0: DD=37154: PA=37137: PB=37152
160 FORI=0TO2: FORJ=0TO2: READJS(J,1): NEXTJ,I
170 POKE V,3: POKE S1,220
180 GOTO480
190 POKE DD,127: J3=-((PEEK(PB)AND128)=0): POKE DD,255
200 P=PEEK(PA): J1=-((PAND8)=0): J2=((PAND16)=0): J0=((PAND4)=0)
210 DX=J3+J2: DY=-(J0+J1): RETURN
220 P=PEEK(197): IFP=30THENDX=1
230 IFP=37THENDX=-1
240 IFP=41THENDY=1
250 IFP=26THENDY=-1
260 RETURN
```

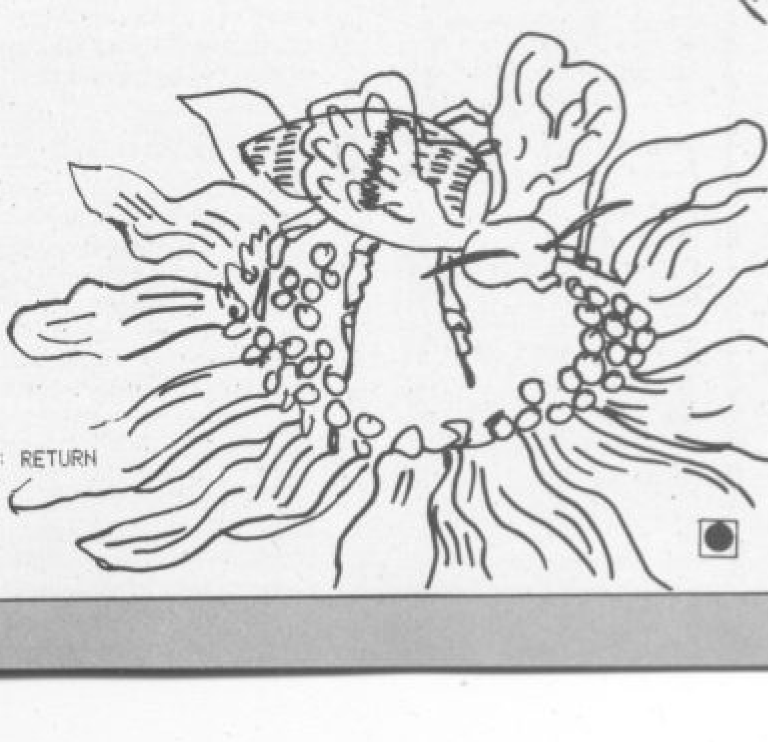
Beekeeper











```
270 POKE P1+X1-22*Y1,32: X=X+DX: X1=X: Y=Y+DY: Y1=Y
280 POKE P3,M2: POKE P3+30720,0: RETURN
290 IFHN=0THENRETURN
300 POKE S1,0: POKE V,15: FORI=1TOHN: POKE S2,250: SC=SC+5: LE=LE+5
310 FORJ=1TO50: NEXTJ
320 POKE S2,0: NEXTI
330 POKE V,3: POKE S1,140
340 PRINT "[HOM][CUR][CUR][CUR][CUR][CUR]"SC: HN=0: PRINT "[HOM][CUD][CUR][CUR][
CUR][CUR][CUR][CUR][CUR][CUR][CUR][CUR][CUR][CUR][CUR][CUR] ": POKE 7722,32: RET
URN
350 IFHN=5THENRETURN
360 POKE S1,0: POKE V,15
370 FORI=1TO5: POKE S2,200
380 FORJ=1TO50: NEXTJ
390 POKE S2,0: NEXTI: HN=5: PRINT "[HOM][RED][CUD][CUR][CUR][CUR][CUR][CUR][CUR]
[CUR][CUR][CUR][CUR][CUR][CUR][CUR][CUR]*": POKE V,3: POKE S1,200: RETURN
400 POKE P1+X1(N)-22*Y1(N),32
410 X(N)=X(N)+DX: X1(N)=X(N): Y(N)=Y(N)+DY: Y1(N)=Y(N)
420 POKE P3,B%(N): POKE P3+30720,2
430 RETURN
440 POKE S1,0: POKE V,15: FORJ=1TO70: POKE S2,180+J: NEXTJ: POKE S2,0: POKE V,3:
 POKE S1,240
450 T=T+1: PRINT "[HOM][CUD][CUR][CUR][CUR][CUR][CUR]"T: RETURN
460 FORC=7434TO7437: D=C+8: PC=PEEK(C): PD=PEEK(D)
470 POKE C,PD: POKE D,PC: NEXTC: RETURN
480 DX=0: DY=0
490 ONGGOSUB220,190
500 P3=P1+X+DX-22*(Y+DY): PK=PEEK(P3): IFPK=32THENGOSUB270
510 IFPK=41THENGOSUB350
520 IFPK=42THENGOSUB290
530 N=INT(RND(1)*BS)+1: DX=SGN(X-X(N)): DY=SGN(Y-Y(N))
540 R=INT(RND(1)*5): IFR=2THENDX=0
550 IFR=3THENDY=0
560 P3=P1+X(N)+DX-22*(Y(N)+DY): PK=PEEK(P3): IFPK=32THENGOSUB400
570 IFPK=M1ORPK=M2THENGOSUB440
580 POKE P1+X-22*Y,M1: GOSUB460
590 IFT<10THEN640
600 IFSC>HGTHENHG=SC
610 PRINT "[CUD][CUD][CUD][CUR][CUR][CUR][BLK]PRESS SPACE BAR"
620 GETA$: IFA$=" "THENPOKE 36869,240: GOTO30
630 GOTO620
640 IFLE<100THEN480
650 IFLV=5THEN480
660 F=F-10: BS=BS+1
670 LE=0: LV=LV+1: GOSUB680: GOSUB700: GOTO480
680 FORI=1TO100
690 PRINT "[CLR][CUD][CUD][CUD][CUD][CUD][CUR][CUR][CUR][CUR][CUR][CUR]LEVEL"LV:
 NEXTI: RETURN
700 PRINT "[CLR][BLK]SCORE"SC; TAB(12)"HIGH"HG
710 PRINT "[RED]STING"T
720 FORX=0TO21: FORY=0TO20STEP20
730 POKE P1+X-22*Y,40: POKE P2+X-22*Y,6
740 NEXTY,X
750 FORX=0TO21STEP21: FORY=0TO20
760 POKE P1+X-22*Y,40: POKE P2+X-22*Y,6
770 NEXTY,X
780 FORX=1TO20STEP19: FORY=1TO19STEP18
790 POKE P1+X-22*Y,41: POKE P2+X-22*Y,2
800 NEXTY,X
810 FORI=1TOF
820 RX=INT(RND(1)*18)+2: RY=INT(RND(1)*17)+2
830 RC=INT(RND(1)*8): RF=INT(RND(1)*3)+37
840 POKE P1+RX-22*RY,RF: POKE P2+RX-22*RY,RC: NEXTI
850 POKE 7932,42: POKE 38652,2: X=11: Y=X: X1=X: Y1=Y
860 RESTORE: FORI=1TOBS: READX(I),Y(I): X1(I)=X(I): Y1(I)=Y(I): NEXT
870 POKE P1+X-22*Y,M2: POKE P2+X-22*Y,0
880 FORI=1TOBS: POKE P1+X(I)-22*Y(I),B%(I): POKE P2+X(I)-22*Y(I),2: NEXT: RETURN
890 DATA2,1,19,1,2,19,19,19,5,5,15,15,5,15,15,5
900 DATA-23,-22,-21,-1,0,1,21,22,23
```

The 64 ought to be an excellent computer for games – and fortunately some suppliers are indeed taking advantage of that. Others aren't. Here's this month's crop of reviews.

How do we assess games? Basically we play them – which may sound obvious, except that all the reviewers have seen so *many* games that they can apply a bit of comparative experience to the evaluation.

We rate games out of five for each of four criteria. **Presentation** means how well the thing is packaged and how good it looks on the screen: dull graphics and poor sound get marked down here. **Skill level** refers to how much skill (of whatever kind) is required to play the game – so if pure chance is involved, the game gets a low mark. (But don't dismiss it on that: some 'chance' games are great fun.) **Interest** is an answer to how well the game did at maintaining the reviewer's interest in it. And **Value for Money** is obvious enough: it's our overall conclusion about how it compares with other games and whether we'd buy it ourselves.

SCREEN SCENE

COSMIC SPLIT
Joystick only
Price £7.95

An astronomical title for an honest, down to earth game of *Centipede*. Two unusual features are the rotating segments of your creepy crawly antagonist and a whirling fireball, both well animated. Snakes, spiders and fleas complete the menagerie your laser cannon has to destroy, amidst the green and pink fungi.

A faithful, competent rendering of a popular scenario: colourful, with all the action applicable to the plot. The grey background is a happy choice, being both restful to the eye and setting off the characters well. Smooth graphics with unobtrusive sound effects make this a program worth checking out, especially if you like luxury presentation wallets. The clear score table is self contained in a section to the right of the action. *LS*

PSS

Presentation:	■■■■□
Skill level:	■■■□□
Interest:	■■■□□
Value for money:	■■■□□



DEPTH CHARGE
Commodore 64
keyboard
Price £4.99

In this cassette-based game by Commodore you are the Commander of a battleship which can be moved left or right across the top of the screen (the ocean surface). Enemy submarines move at different levels beneath the ocean, releasing deadly mines (?) which float to the surface to destroy your ship. These must be avoided by rapid evolutions or by dropping depth charges to destroy them.

Up to five depth charges can descend at any time, and you score points by destroying mines or submarines. The main object however is to survive for a period of 90 seconds: points are scored for every second you survive.

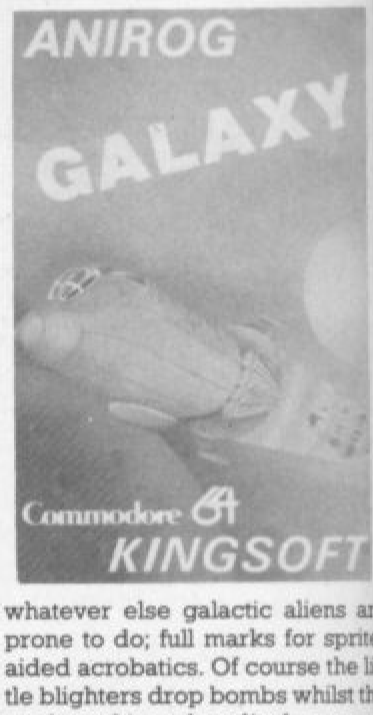
This game is not easy: after an hour of playing on the lowest level, instances of surviving the full period of time were very rare. But it didn't hold our interest for long: graphics are mediocre for the 64 and the poor use of colour made if difficult to distinguish between depth charges and mines. (We suspect that, as for the Vic, Commodore's quality games are on cartridge – where at under £10 each they represent very good value for money.) *WG/PR*

Commodore Business Machines, 675 Ajax Avenue, Trading Estate, Slough, Berks.

Presentation:	■■□□□
Skill level:	■■■■□
Interest:	■■□□□
Value for money:	■■□□□

GALAXY
Keyboard or Joystick
Price £7.95

Bully for Anirog! Never having succeeded in finding a half-decent version of *Galaxians* for my Vic-20, my patience (and yours?) has been rewarded with this winner for the 64. After the mode has been selected, one or two players, the program presents a black screen, with a separate section for all the necessary read-outs to the left. Before your very eyes the red and blue fighters, joined by purple mother ships form an attacking formation. Not only do they swerve and swoop but bank and veer and



whatever else galactic aliens are prone to do; full marks for sprite-aided acrobatics. Of course the little blighters drop bombs whilst the mother ships also display a tendancy to sally forth with tractor beams. Special screens are included, with no bombs to avoid: just hurtling formations of the enemy to zap for bonus points. Competent sonics accompany the battle, but the action is engrossing enough to need hardly more than splats! One small whine: not too keen on small blue objects on black backgrounds; Otherwise A1. With 100 stages it should be adored by all space fans. *LS*

Anirog

Presentation:	■■■■□
Skill level:	■■■■□
Interest:	■■■■■
Value for money:	■■■■□

HOVER BOVVER
Joystick only
Price £7.50

This latest masterpiece from the Llamasoft stable brings you not only arcade speed and action, but also graphics, animation and sound which demonstrate the magnificent potential of the CBM 64.

Using the joystick you steer Gor-

don Bennet and his borrowed air-mo lawnmower to mow your way through the garden, avoiding the neighbour who is trying to retrieve it. You must also avoid the flower beds or the infuriated gardener will start chasing you. Your dog is initially a help and by using the joystick button, you can command him to fend off neighbours or gardeners. This is particularly useful if the mower overheats and you are forced to remain stationary until it cools down. Alas, using this facility soon exhausts the dog's obedience and eventually he gets fed up with the noise and your four legged friend becomes a hazard by attacking the mower. Guages are provided for mower temperature, dog tolerance and dog obedience and 16 different gardens are programmed in, the first eight being pre-selectable.

This game is highly recommended – it will undoubtedly become a classic. *WG/PR*

Llamasoft

Presentation:	■■■■■
Skill level:	■■■■□
Interest:	■■■■□
Value for money:	■■■■■



KICK–OFF
Keyboard or Joystick
Price £6.99

The grandaddy of all arcade games; played long before *Space Invaders*, when chips meant fried potatoes and went with everything. Yes this is table-top football complete with rods and spinning players. Well thought out, employing colour to good effect and being a brilliant simulation with all the thrills and frustrations of the original. Either play the 64 or a human opponent (preferably less experienced than yourself) but read the explicit instructions first. Naturally good control will come only with practice so match the ball speed to your ability.

The title screen is very much part of the entertainment: a well defined crowd with appropriate music (a really good feature). Obviously effort has been put in here. Anyone looking for something "different" or fans of actual game will appreciate this quality offering. *LS*

Bubble Bus

SCREEN SCENE

Presentation:	■■■■■
Skill level:	■■■■■
Interest:	■■■■□
Value for noney:	■■■■□



MEGAWARZ
Keyboard or Joystick
Price £7.50

A cultured, sophisticated space game! Your mission is to return to Earth via the six outer planets. After despatching alien forces, which on the evidence of the first three stages are both skillfully designed and delicately defined, you get to fly to the next world on your journey. The illusion of traversing distance is achieved by diminishing the size of the rocket in flight as you head towards the next globe. It's not too easy to manage your craft in battle mode: once you thrust off tight control is essential. The enemy, three at a time, pulsate through the 64's colour range and require multi-hits to be destroyed: fortunately a shield facility is at your disposal. A bonus screen follows each wave: rescue the astronauts before they mutate! A most powerful section of the program is the musical score aided by more mundane sound effects: really quite excellent and entertaining.

An interesting feature is the ability to set your own parameters before play commences. Then just work your way through a skillfully orchestrated program, admiring the sprite graphics on the way to your destination; Earth and the Hall of Fame. *LS*



Paramount

Presentation:	■■■■■
Skill level:	■■■■□
Interest:	■■■■■
Value for money:	■■■■■

SPRITE MAN
Commodore 64
keyboard
Price £7.00

Some CBM 64 games lack imagination and are just carbon copies of much tried and tested arcade games. This probably satisfies some people; but if you are looking for originality, don't buy *Sprite Man* – yet another version of 'Pac-Man' complete with a muncher in a maze with dots, energy pills, fruits, four ghosts.

It is difficult to think of anything new to say about such an arcade classic. The graphics and colour are not bad; but they don't fully exploit the potential of the 64. The muncher moves exceptionally fast and great difficulty was experienced in negotiating corners and junctions on the maze, which degraded the playability of the game. In summary? A just-about-adequate version of the arcade game. But in our opinion, not a patch on the (recently withdrawn) *Jelly Monsters* cartridge for the Vic. *WG/PR*

Interceptor Mikro, Lindon House, The Green, Tadley, Hants.

Presentation:	■■□□□
Skill level:	■■□□□
Interest:	■■□□□
Value for money:	■■□□□

SKI-ER 64
Commodore 64
Joystick or keyboard
Price £5.99

This is one of those beat-the-clock games that gets everybody pushing in for their turn. It works just like real slalom skiing; you manipulate your skier around the gates, trying to clock up the fastest time. Hitting a gate gets you disqualified immediately. But you can get away with knocking a post. You stop the clock by shooting through the finish line – and then it's Franz Klammer's turn.

The blurb tells you there are two games: Slalom (with two

degrees of difficulty) and Alps. But Alps merely replaces gates with trees, so why bother? At least the trees really look like trees.

Both games use speed-up and slow-down keys, and you'll need them too as the speed gradually increases as you hurtle along – the keyboard seemed better than joystick for control. Most of the screen is white (not surprising really) so you may need goggles to avoid snow blindness. It's good fun; but for how long? *BB*

Abacus Software

Presentation:	■■■□□
Skill level:	■■□□□
Interest:	■■□□□
Value for money:	■■□□□



Abacus Software



SCREEN SCENE

WIDOWS REVENGE
Joystick only
Price £6.99

Gather your strength while it's loading! *Son of Centipede* maybe; but it's a whole new ball game. Mushrooms are replaced in favour of blue eggs and dreaded white energy pods: no worm – but hoards of black spiders marching towards your DDT spray. If they bump into a blue egg they merely change course but an energy pod causes a deadly thread to be cast downscreen. The black widow tracks across the combat zone depositing energy pods but the real star is the bat-like creature, laying blue eggs willy nilly – you can't obliterate him, merely scuttle him off for a second or so. (He also demonstrates sprite graphics rather well.)

You can leave the screen light grey or allow it to change colour after each wave. One or two player option, with more than enough to shoot at even for adept arcadians. These features added to good graphics and sonics make this a good bet for all 64 owners. Will we get a sequel? *LS*

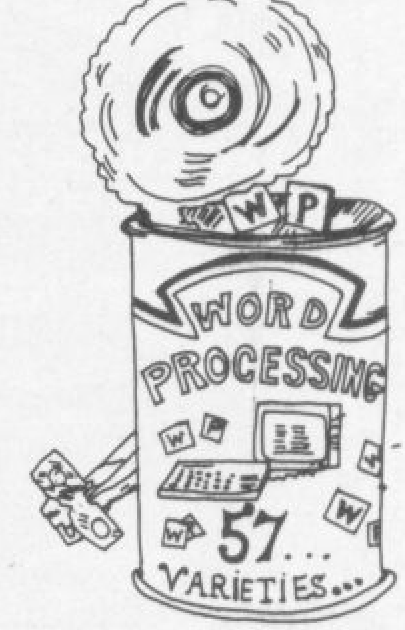
Bubble Bus

Presentation:	■■■■□
Skill level:	■■■■□
Interest:	■■■■□
Value for money:	■■■■□

Word processing Road Test

Chris Durham

Paperclip 64



Paperclip 64

This is a disk based program used in conjunction with a security 'key' (or 'dongle') which fits into one of the control ports. The program allows 829 lines of text, equivalent to just over seven pages of A4 — more than adequate since files can be linked together giving virtually unlimited length.

Functions

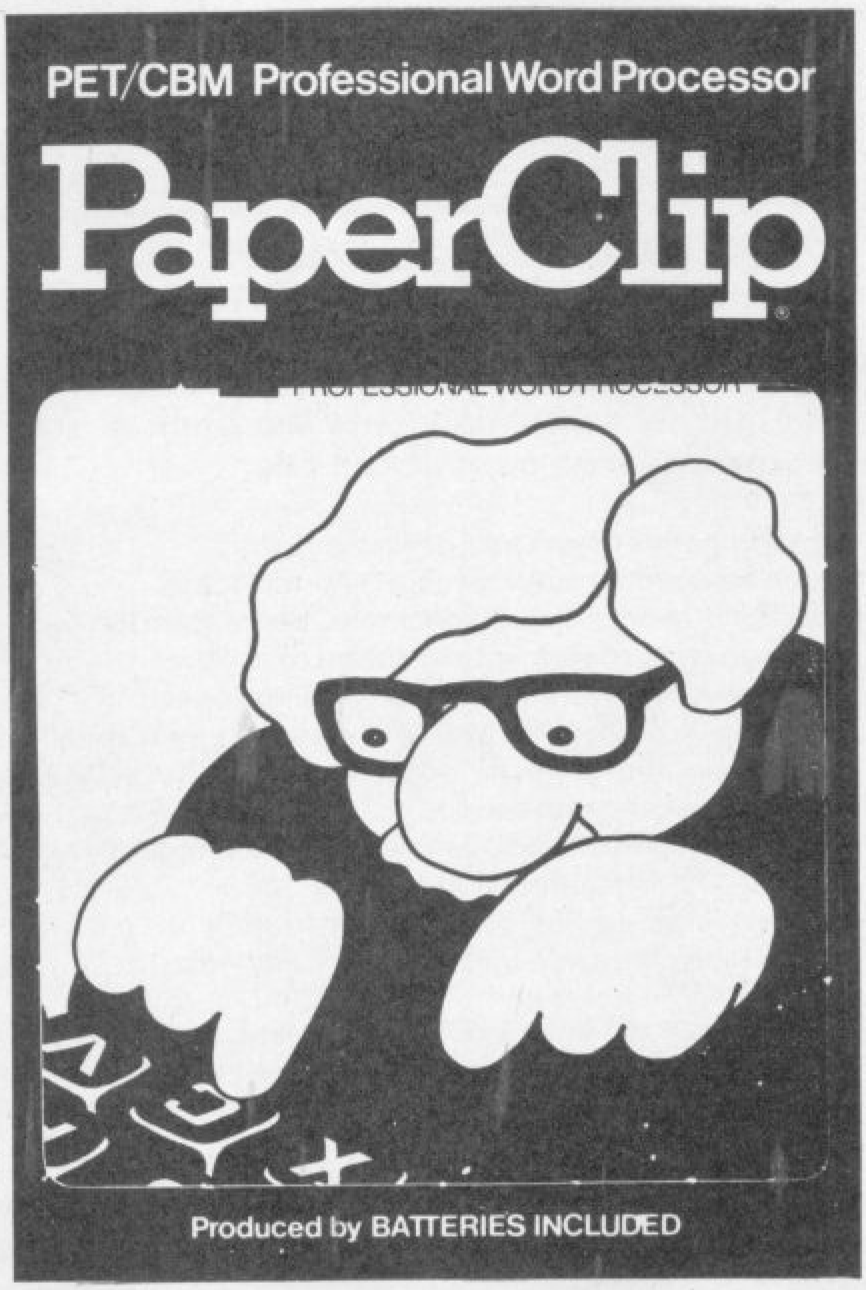
Paperclip is absolutely loaded with functions and it would take a magazine of its own to go into them in any detail – the manual is a massive 112 pages.

The program does not format as you type and therefore a large number of print format commands have to appear in the document. The maximum width that the document can be set to is 192 columns, but typing in on 40 columns with wrapround makes it impossible to see how the document will look until you print it. There is a 'preview' facility, but this suffers from the drawback that it doesn't scroll sideways; hence you never see the part of the document that is beyond the 40th column.

The format commands are easy enough to use. They are preceded by the 'check mark' generated by hitting the £ key. Examples are **cn1** which turns centering on (**cn0** turns it off again); **pgN** sets paging after **N** lines; **ju1** turns on right-justification.

These commands must be on a new line and must not be followed by text on the same line. As with all WP programs that format only on printing this has the effect of breaking up the document and making it look very cluttered.

Some of the embedded format commands *can* appear within the text; these must be preceded by the ESC (left arrow) key and perform things like **underlining (ESC C)** and **italics** (ESC ‹).



Actually editing the document is very easy. All the normal editing functions are available, plus a series of **block** commands that allow lines of text to be **moved, copied, deleted** or **saved.** Although these work only on whole lines there are additional 'phrase' editing commands to amend part lines as well.

A very nice feature is the use of the **Commodore key** to toggle insert mode on and off. This allows text to be inserted anywhere in a document in any quantity.

Tabs are set using the **Shift CLR** key; the tab position is shown on the second line of the screen. (The top two lines are the Status line and the Tab line respectively.) The Tab is then selected by using the **RUN/STOP** key. There are also **numeric tabs** for lining up columns of figures, set by **CTRL N.**

One drawback of using numeric tabs is that they do not recognise the fact that you can precede a figure by the $ sign, but not by the £ sign; the latter cancels the effect of the numeric tab. Rather annoying if you work in English currency.

There is a useful 'Caps Mode', selected by hitting the **up-arrow** key. This causes all the alpha characters to be printed in upper case, but leaves the other keys unaffected; much better than using 'shift lock', which affects the whole keyboard.

Another nice feature is the ability to assign commonly-used phrases to a single key. **'Check mark'**

Control Functions

CTRL X	Exit program
CTRL I	Insert multiple lines
CTRL E	Erase text or Range
CTRL L	Load text from disk
CTRL S	Save text file to disk
CTRL J	Load data (SEQ) file
CTRL Z	Save data (SEQ) file
CTRL U	Verify data file
CTRL ›	Send disk command
CTRL ‹	Fetch disk status
CTRL +	Insert single line
CTRL −	Delete single line
CTRL 0	Drive 0 directory
CTRL 1	Drive 1 directory
CTRL 2	Both drives directory
CTRL A	Append (insert) text file
CTRL R	Set range
CTRL T	Transfer range
CTRL D	Delete range
CTRL C	Copy range
CTRL Q	Save range
CTRL F	Find string
CTRL H	Hunt string
CTRL @	Search & replace
CTRL G	Global file copy
CTRL P	Set phrase
CTRL M	move phrase
CTRL K	Kill phrase
CTRL Shift K	Change case in phrase
CTRL 0	Printer output
CTRL V	Video output
CTRL Shift 0	Default output
CTRL W	Load printer file
CTRL N	Set/clear numeric tab
CTRL S	Change disk device number
CTRL #	Change printer device number
CTRL Shift C	Set column
CTRL Shift M	Move column
CTRL Shift D	Delete column
CTRL Shife E	Erase column
CTRL Shift S	Shift column
CTRL Shift I	Insert before column
CTRL Shift R	Repeat column
CTRL Shift B	Fill in variable block
CTRL Shift V	Fill in all variable blocks
CTRL Shift F	Find variable block
CTRL Shift N	Nullify variable blocks
CTRL Shift Z	Change variable file name
CTRL =	Add/subtract column
CTRL .	Set decimal point
CTRL Shift A	Sort column using delimiters
CTRL Shift Q	Set delimiters
CTRL Shift W	Create delimiter column
CTRL Shift H	Add row using delimiters
CTRL Shift L	Change line length
CTRL Shift CLR	Clear all non-numeric tabs
CTRL CRSR Dn	Rapid scrolling down the document
CTRL CRSR Up	Rapid scrolling up the document
CTRL !	Breakpoint (soft space)
CTRL ‹	Boldface begin
CTRL ›	Boldface end
CTRL [	Underline begin
CTRL]	Underline end
CTRL 4	Superscript single character
CTRL 6	Subscript begin
CTRL 7	Superscript begin
CTRL 8	Superscript end
CTRL 9	Subscript begin
CTRL /	Subscript end
CTRL ;	Special character
CTRL :	Conditional hyphen
CTRL £	Checkmark character
CTRL B	Variable block

Escape Sequence

ESC !	Subscript begin
ESC "	Subscript end
ESC #	Superscript single character
ESC $	Subscript single character
ESC %	Superscript begin
ESC '	Superscript end
ESC &	Special character
ESC (	Boldface begin
ESC)	Boldface end
ESC [	Underline begin
ESC]	Underline end
ESC ‹	Italics begin
ESC ›	Italics end
ESC .	Underline character
ESC RUN/STOP	Go to next numeric tab
ESC £	Delimiter for variable blocks

Direct Key Functions

RUN/STOP	Go to next tab stop
Shift CLR	Set TAB stop
HOME	Move cursor to top LH posn on screen
HOME/HOME	Go to first line of text
Shift RUN/STOP	Go to end of text
Up-arrow	All Caps mode
Left arrow	ESCape
RUN/STOP	Screen read a file name (when used after CTRL L)

Formatting commands

(All preceded by the 'check mark' £ key)

ai+N	Auto indent paragraphs to right of left margin
ai−N	Auto indent paragraphs to left of left margin
cn0	Turn centering off
cn1	Turn centering on
ftN	Set up footer 'N' lines from bottom of page
hdN	Set up header 'N' lines above text
h1N	Set left margin of header to column 'N'
hrN	Set right margin of header to column 'N'
ju0	Turn justification off
ju1	Turn justification on
lmN	Fix left margin at column 'N'
1sN	Set line spacing to 'N' lines per inch
pgN	Set paging after 'N' lines
ppN	Set physical page length to 'N' lines
ptN	Set pitch to 'N chars per inch
ra0	Turn right-alignment off
ra1	Turn right-alighment on
rmN	Set right margin at column 'N'
spN	Set spacing (no of CRs) to 'N'
vpN	Leave 'N' blank lines at the top of each page
x=N	Set user-defined character 'X' equal to ASCII value 'N' (where 'X' − 1-9)

(This list is not exhaustive; there are at least another eight commands regarding margin settings alone. Only the main ones have been shown)



a=Ministry of Education will assign that string to the letter **a**, and when you want to use the phrase you touch the **left-arrow key;** the prompt 'key?' then appears on the Status line. Typing '**a**' inserts the complete phrase into the document.

Output

This is one area where Paperclip really shows the rest how to do it. Each type of printer has its own **'printer files'** on disk, specifying all the various codes needed to perform the standard functions. Before you do a print you load the printer file for your own printer; this allows almost any type of printer to be used efficiently.

If your printer is not specified you have only to create your own 'printer file' to be able to use it, and detailed instructions for that are in the manual.

A useful feature for producing neat documents is the **conditional hyphen.** Because you don't know in advance where your words will appear it is not possible to hyphenate words as you type them in. Using the conditional hyphen in long words means that the hyphen only appears if a word needs to be split.

While it is not really aimed at the complete beginner it does cover all the facilities and is clearly laid out. It is easy to read, too, and there's a good summary of all the commands and control functions at the back with a list of error messages and their meanings.

Limitations

Apart from not formatting the text as you type and the limitations of the 'preview' feature there is little that has been left out. I can think of few jobs that this package could not handle.

Other facilities

Paperclip uses the colour facilities of the 64 well. Function keys **2, 4** and **6** change the character, screen and background colours respectively.

Two features which really make this package a cut above the rest are the alphabetic column sort and the column manipulation. The former lets you enter columns of text such as addresses and then sort them by 'fields' into alphabetical order.

The other one allows columns of figures (or text) to be moved, copied, deleted and inserted as well as doing simple addition or subtraction on both rows and columns. Having done your arithmetic you can place the result anywhere in the document.

Headers, footers and **automatic page numbering** are all provided, allowing professional-looking documents to be produced. You can also save and load blocks of text allowing letters to be created from **standard paragraphs.** As you would expect the normal **mail-merge** facilities are also present.

The disk commands are extensive – typing **CTRL** › give the full range. Files can be saved either as normal PRG files using **CTRL S** or as SEQ files using **CTRL Z** (files can then be created which other programs can read). The disk directory can be displayed by **CTRL 0.** You can even load a file from the directory list by moving the cursor to the file name and typing **CTRL L** – if you then hit **RUN/STOP** the file will be loaded; very neat.

Other good features include the ability to print **multiple copies** of a document and allow **multiple spacing** between lines on the output.

The manual

This is a very large document indeed, and it's comprehensive – though regrettably there is no index; you have to look through the contents pages each time you want to find something.

Conclusions

At £98-90 this is probably one of the most expensive WP packages currently available for the 64. Fortunately it is also one of the most comprehensive, with a number of features that leave other WP programs way behind.

If you want all those facilities there is really no other choice; the other packages just can't compete. If you don't really need all of them, however, you might be better off looking at something a bit cheaper.



Paperclip on balance

For

- Text creation and editing facilities are very easy to use with a good range of block commands
- Files can be saved as either text or data
- Excellent range of printer options, using 'printer files'
- Large range of formatting commands
- Alphabetic column sort
- Ability to manipulate columns easily and do simple arithmetic on columns or rows
- Good range of disk commands
- Good use of colour
- Comprehensive manual
- Ability to link files, not only for printing, but for Search/Replace and Find operations as well

Against

- Text does not appear on the screen as it will be printed
- Formatting commands cause the screen to look rather cluttered
- Rather expensive

Under review	**Paperclip**
Supplier	**Kobra Micro Marketing Henley**
Price:	**£98.90**

Another Basic extender

ULTRABASIC for the 64 reviewed

by Mike Todd

In December Mike Todd looked at two Basic enhancement packages for the 64 — Simons' Basic and BC Basic. Since then we've found another such package for him to get his teeth into. ULTRABASIC-64 was written in the USA by Roy Wainwright (stalwart of a company over there called Abacus and probably best known for Abacus's music and graphics tools for the Vic). ULTRABASIC is available in the UK through Adamsoft at £22.95 for a cassette or £24.95 for the disk version.

Being on disk or cassette means that ULTRABASIC must be loaded at the start of a session and this is done in two stages.

First, the appropriate 'initialiser' program is loaded depending on the type of printer you are using. It will cope with a Commodore 1515 or 1525 printer, or an Epson MX-80/FX-80 connected via the user port. (If the Epson option is chosen, you're asked if a line feed should be sent to the printer after each carriage return.)

Once this is RUN, the main part of ULTRABASIC is loaded automatically ... followed by a frustrating 15 seconds of animated title page. Only when this has finished its antics is ULTRABASIC installed and ready for use.

Controls

At this point, three of the function keys are set up as special control keys. Pressing F7 will switch over to the graphics screen (which at this point still has the title page on it); F5 will revert back to text. F1 will turn off any sounds that may have been accidentally left going.

And what do you get? Well, for a start there's what you *don't* get – ULTRABASIC has no programmer's aid type commands, no extra arithmetic or string commands, and no structured programming facilities – other than an unusual loop control feature which is discussed later.

Graphics

Setting up the graphics screen is simple. **HIRES** or **MULTI** commands specify the colour of the screen and border; and there is the usual range of plotting commands for plotting points, drawing lines, circles and boxes and for putting text on the screen. all with the origin of the screen (0,0) at the bottom left.

There are also a few unusual commands. **TIC** places tick marks along the edge of the display screen for use as axes in graphs; **CHAR** puts normal-size characters on the hi-res screen and large characters on the multicolour sceen; **BLOCK** which draws a block of the specified colour. The BLOCK command is particularly unusual, for in hi-res mode the block of colour appears in the screen background so that normal plotting can still be done over the top of it.

Each of these graphics commands is performed in the specified colour, with multicolour mode allowing three 'paintbrushes' (as the handbook calls them). They are specified by adding zero, 100 or 200 to the plot colour.

The **MODE** command determines whether points and lines should be set, erased or inverted. Once the mode is set, all graphics commands are performed in the specified mode until it is changed.

There is also a **FILL** command; but as confusion can occur in multicolour mode as to which lines represent the area boundaries, it is possible to specify which 'paintbrush' was used to draw the boundary.

The graphics screen can be saved on disk or cassette – though the large quantity of data involved means that this takes a long time: up to 50 seconds on disk, very much longer for tape. It is also possible to print the graphics screen on an Epson MX80/FX80: or on a Commodore 1515 (with the upgrade ROM) or a 1525E. The handbook points out that printers connected through an IEEE interface will not work, and the Epson must be connected using a user-port-to-Centronics-interface cable.

Turning Turtle

As well as the conventional graphics commands, ULTRABASIC provides for TURTLE graphics. These are based upon the idea of controlling a mobile drawing machine (called a 'Turtle') and directing it to turn and move with its pen up or down.

When the turtle mode is selected, a picture of the turtle appears on the screen at the specified co-ordinates. From now on its movement is controlled using the TURTLE commands.

TURN will turn the turtle through a specified angle (in degrees) and **MOVE** will move it a given number of dots in the

Graphics Commands

HIRES
MULTI
MODE

DOT
DRAW
BOX
BLOCK
CIRCLE
CHAR
FILL

TIC
PIXEL

Sprite Commands

COPY
SPRITE
OFF

PLACE
ROTATE

BIT
COLORS
HEX
SDATA

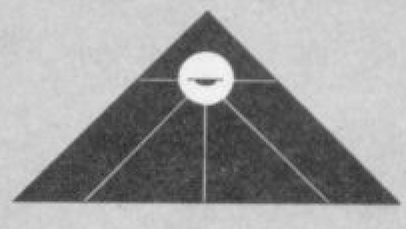
SCOLL
BCOLL

Turtle Commands

TURTLE
TCOLOR
BYE

TUP
TDOWN
TURN
TURNTO
MOVE

TPOS



Misc Screen Functions

DUMP
GREAD

HARD

NORM

NORM
GRAPH

Sound

SOUND
GEN
VOL

SET
SDATA
TUNE

Other commands

JOY
PADDLE
PEN

SCIR
CTR

[n: . . . . :]
:EXUT

direction it is pointing.

This type of graphics plotting is extremely easy to use, although a little slow; but the turtle itself can be turned off (using **BYE**) and this does speed up plotting considerably.

If at any time you need to know where the turtle is, the direction it is pointing and its X and Y co-ordinates can be read.

Sprites

Sprite definition in ULTRABASIC is done by either 'drawing' the sprite using 1s and 0s (numbers 0 to 3 if defining a multi-colour sprite) or by using hex or decimal representations.

The decimal definition is far more versatile than the handbook shows since the numbers (which are incorrectly shown in the handbook as being within quotes) can be *any* numeric variable. So there is the possibility of setting up sprite definitions from disk or cassette.

Sprites are positioned using the **PLACE** command and can be rotated through 90 degrees at a time using **ROTATE.**

There is no sprite movement facility, and this must be done by repositioning the sprite using **PLACE;** but there are commands available to determine when specified sprites have collided with themselves or with the background.

Sound

There are two ways of generating sound using ULTRABASIC. The **SOUND** command simply turns on a specified voice at a given pitch for a given length of time; **GEN** allows the sound generator parameters involved to be set up if the default values are not required. As well as setting the overall volume, **VOL** will also allow the filter parameters to be set.

The second method involves setting up tune data statements using the **TDATA** command, selecting these to a sound generator using **SET**, and then playing them with the **TUNE** command.

The data required is complicated to set up and needs to be written in hexadecimal notation. It allows a specific pitch to be selected and then modified as the tune continues. It is really far too complex to be used for playing tunes, but could be useful for games sound effects.

Pitch is determined using the numbers 0 to 127, which generate specific notes according to a table included in the handbook, and there is limited scope to tune between notes.

ULTRABASIC also includes a rather unusual but useful loop control facility. It's rather like a FOR/NEXT loop ... only different. A loop is set up as follows:

[27: X=X+1 : PRINT X :]

That will cause the instructions within the square brackets to be executed 27 times. Although the handbook implies that this figure should only be a constant value, it is possible to use *any* legal arithmetic expression to control the loop.

The loop itself can consist of several lines of Basic code; and loops can be nested within loops, up to a maximum of 30. **EXIT** can be used to leave the loop should this be needed.

Conclusions

The fact that it is easy to switch between the text and graphics screens using the F5 and F7 keys (or **NORM** and **GRAPH** commands) made experimenting with the package extremely easy, although there were times when the F-key switching stopped working. Further investigation showed that the interrupt pointers had been changed by ULTRABASIC and this also meant that the 10 internal timers had stopped counting.

Because graphics and text screen must share a common colour memory, ULTRABASIC preserves the colour memory of a graphics screen when flipping back to text mode. But it does not save the text-mode colour memory and instead just fills it with a single colour when you flip back to text. It also means that care should be taken if anything is printed to the text screen whilst displaying the graphics screen as it could corrupt the graphics colours.

The main attraction of ULTRABASIC is certainly the inclusion of the TURTLE graphics commands. And for those alone, it may be worth considering – although there are other (and more versatile) packages available for those who want to specialise in this form of graphics control.

The overall range of commands is restricted. But at least the graphics commands are simple to understand, and they do contain the most frequently-needed features. Sound control though is limited and can be difficult to use.

Overall: a good but limited package. At least it comes complete with a demonstration program as well as two tutorial programs describing how the commands are used.

Category of functions	Range	Ease of use	Usefulness	Reliability
Graphics set-up	★★	★★★★	★★★★	★★★★★
Plotting commands	★★★★	★★★★	★★★★	★★★★★
Turtle commands	★★★★	★★★★★	★★★★	★★★★
Misc screen commands	★★★	★★★★★	★★★★	★★★★★
Sprite set-up	★★★	★★★	★★★★	★★★★
Sprite programming	★★	★★★★	★★★★	★★★★★
Keyboard input	none	none	none	none
Misc input/output	★★★	★★★★★	★★★★★	★★★★★
Sound set-up	★★★★	★★★	★★★★	★★★★
Sound programming	★★★★	★	★	★★★★
Programming commands	★	★★★★	★★★★	★★★★★
Misc facilities	★★	★★★	★★	★★★
Total points	32	41	40	49
BC Basic	*37*	*49*	*47*	*59*
Simons Basic	*47*	*43*	*42*	*47*
Overall total	162			
BC Basic	*192*			
Simons Basic	*179*			
Price	**£22.95 (cassette), £24.95 (disk)**			
BC Basic	*£19.95*			
Simons Basic	*£50*			
Value for money	7.06			
BC Basic	*9.62*			
Simons Basic	*3.58*			
Availability	**Adamsoft, 18 Norwich Avenue, Rochdale, Lancs OL11 5JZ**			



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Business management on tape

Quick Count's Cash Trader Bookkeeper reviewed

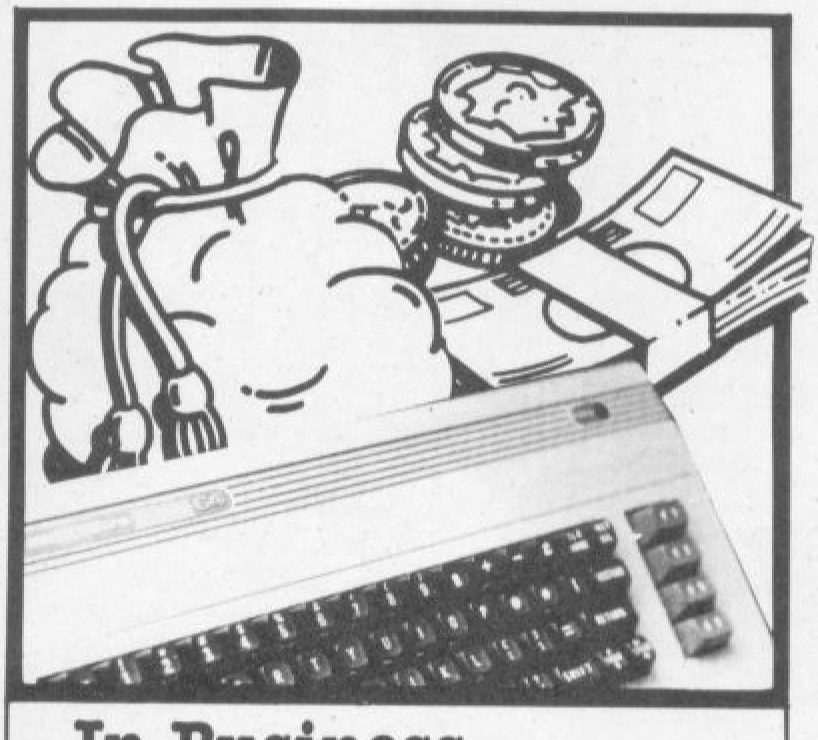
by Tony Harrington

Quick-Count's 'Bookkeeping system for the Cash Trader' is a very interesting attempt to provide a complete cassette-based business system for the 64. The title says a great deal about the approach Quick-Count has taken. It really is designed as a basic 'do-it-yourself' bookkeeping system and the knowledge of accountancy or bookeeping that you need to run it – with one important exception – is minimal. Tony Harrington checks it out.

In one sense, this is a very primitive system. There is no sales ledger and no purchase ledger: instead it works for the most part off ideas that everyone in the trade understands. You have cash coming into the company and cash going out of the company. Keep track of this on a weekly basis, and you've got yourself a business system. What could be simpler?

Inevitably though, to be really useful, the package has to go beyond the basic level. And this is where the exception mentioned above comes in. The package has to pull together and summarise the data that is keyed in from week to week. And at this point the user with no bookkeeping knowledge at all will find him/herself encountering unfamiliar accounting terminology. Words like 'nominal ledger', 'profit and loss account' and 'balance sheet' becomes inescapable.

This shouldn't come as a surprise though. The excellent little 17-page manual that goes with the system warns that you will need some idea of how books are kept. This is because the 79 page individual accounts that the system allows in its nominal ledger are already divided up, by Quick-Count, into three categories: trading account, profit and loss account and balance sheet. "If you are in any doubt how these accounts should apply in your business", the manual says, "you would be well advised to take the advice of a bookkeeper before starting out". That is sound advice, and shouldn't cost you more than a few quid.



In Business .. ..

Getting started

The first question that faces a new user of any system is 'how do I get going?'. In this respect Cash Trader is well designed. Once the package has loaded – a procedure that the manual warns will take 10 minutes (and it does) – the opening menu on the screen contains the following choices:

1. **Post**
2. **Display**
3. **Utilities**

In isolation these labels are a bit obscure. But the manual provides clear and detailed instructions.

The first step is to choose option 3 to tell the system some essential things that it needs to know when you first implement the program.

The first of these is whether or not you are using a printer. As a reviewer, I like being given the option of doing without a printer if I so wish. But it is not good bookkeeping practice. You will be entering transactions into the system and if you don't have a printer you risk losing the detailed information on transactions. At certain times, for example, you will be using routines which clear detailed transactions out of the computer's memory and just retain balances. If these details disappear from your memory as well, you will be left with a set of figures that won't mean a thing to anybody!

The manual, once again, sounds a clear warning here: "If you are not using a printer you will have to write down in detail every item you post, as shown on the screen. But the whole business of manually transcribing data from a screen leaves the door open for all kinds of inaccuracies to creep in. You might miss something or get the figures the wrong way round. Why take the risk?

A nice touch is that the package allows you a choice between a standard ASCII printer and a CBM printer. It uses a limited character set, so whatever you choose will give you the same results.

If there is a printer connected, all the posting and display procedures will dump everything that is on the screen down to the printer. At the beginning of every display and posting routine you get a message on the screen asking 'Printer ready? Press Y or N'. If you press N, the program assumes that you haven't yet used 'Utilities' (option 3) to select your printer.

The Utilities menu has eight options:

1. **Printer select**
2. **Set up**
3. **Alter date**
4. **Alter VAT rates**
5. **Alter Nominal A/C descriptions**
6. **New Period**
7. **Dump data file**
8. **Retrieve data file**

Pressing the 'up arrow' key automatically steps you back through the sub-menus to the main menu, so there is never any difficulty in finding your way about the system. You might not understand it initially, but you will be able to move from screen

to screen quite freely without getting trapped. This is a definite plus, since you can experiment and feel your way, confident that you will not be doing any damage to any part of the program.

In operation

The actual operation of the package is simple enough once you have grasped the relationship between the two parts of the system. On the one hand, it presents you with a way of recording takings and expenditure on a weekly basis. On the other, it distributes the takings and expenditure among the nominal ledger accounts.

A nominal ledger aims at providing an overall picture of what is happening to a business. It consists of a number of different account headings, like bank account, cash account, rent account, heating account, sales accounts, purchases accounts and so on.

In Cash Trader, some of these headings are already defined for you, others you can define yourself. You would need to do this if you felt that there were important areas of income or expenditure which you wanted to identify and keep track of during your trading year, that are not identified by the 'skeleton' nominal ledger set up by Cash Trader.

Account numbers 01 to 19 are set aside for the Trading Account, numbers 20 to 49 relate to the Profit and Loss Account and the remaining numbers (50 to 79) are Balance Sheet accounts.

Although a maximum of 79 nominal ledger accounts would be too restrictive for a big business, most traders who would contemplate a system like this should find themselves able to fit their business into it quite happily.

Option 2, 'Set up', automatically creates the skeleton nominal ledger. My only quibble here is that there is no list provided in the manual of the account description set up by Quick-Count. To find out what these are, you have to move to another menu and page through each account.

This is the only way to sort out which account numbers have already been defined and which haven't. I found accounts called 'hire-purchase', 'heating', 'rent' and so on. The manual should really have contained a detailed Nominal Ledger accounts list.

Other options on the Utilities menu are more or less self explanatory. The system will cater for three different rates of VAT (you only need one at the moment), and if the law changes you can key in the new rate or rates in seconds using option 4.

Once you have told the system what the current date is and what the standard VAT rate is (15%), you're ready to go. Option one on the main menu ('Post') brings up a new screen with four choices:

1. **Daily Takings**
2. **Payments in Cash**
3. **Payments from current Bank A/C**
4. **Journals.**

When you start off with the system you will need to input the



opening balances (ie. the amount in key accounts such as the bank account and the cash account). This is done using option 4. Each journal transaction has a three-digit number; you can either input a specific number, or allow the system to start at '1' and increment one each time.

Cash Trader is a double-entry system which should always balance out to zero. So when you debit a particular account with an opening balance, you have to credit A/C no. 77, the Opening Balance Control account. You are given 16 characters to describe the reason for any journal transaction.

Another sound feature of this package is that in any posting routine, before any transaction is stored in memory, you are asked to confirm that everything has been entered correctly ('OK? Press Y or N'). This requirement saves a lot of time in recovering from errors.

The Journal routine is particularly useful when you pay cash into your bank account for any reason. You would use option 4 to debit A/C no. 59, current bank account, and credit A/C no. 60, cash account (If you don't understand why you would be debiting the bank account when paying cash into it, have a chat with someone who understands bookkeeping.)

Daily take

The 'Daily Takings' option is the heart of the system. It is easy to follow if you step through the menu. Like the payments sections (options 2 and 3) this section is based on a seven-day week.

The first thing the program asks for is 'Day' (press 1, 2, 3, 4, 5, 6, 7 or the up-arrow, where Monday is day one and so on: up-arrow exits from the menu).

Having selected the day for which you want to enter takings, there are two more choices to be made. You have to decide if you are posting takings for normal goods or for 'special' items, like the sale of some asset of yours.

Second, you are asked to key 1, 2 or 3 to debit cash, bank or credit card suspense accounts respectively. If you usually treat all your takings as a cash float, you can dump all the takings to the cash account (no. 60) by keying '1'. If you bank some of the takings and keep the rest as cash all you need to do is enter two takings totals for that day. In this respect it is a very simple, flexible system.

I was interested too, to see that the system gives you the means to treat American Express and other credit cards differently from Barclays and Access card pay slips (which go straight into your bank account and are immediately credited to you by the bank). The credit card suspense account allows you to record amounts due from the other card companies separately. When you are sent the cash by the card company, you simply put through a journal entry crediting the credit card suspense account and debiting the bank account.

Next, you are given a chance to enter the amount and to confirm that all the entries you have made are correct. At this point the system debits the cash, bank or suspense account (whichever you instructed) and credits an account called 'takings' (if you entered the takings as normal goods, it credits the 'assets' account if you said the takings resulted from sale of special goods.)

This is a perfectly solid way of building up a picture of a week's takings. Note that it is not individual items sold on each day but only the total summary takings that are entered.

Outgoings

Of course, takings are only half of a business. There are also payments to be made,

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unfortunately, or we'd all get rich quick. Because the system assumes you have two sources of funds (your bank account and your cash float, or cash account) it gives you the option of paying from either.

The payment routine is slightly different from 'takings'. You have to input the date of each payment, and, as with journals, you are given a three digit transaction number (which you could use as the last three numbers of your payment cheque, for example). You have a 16 character description to enter the reason for the payment (normally this would be used to record the person or company paid).

There is also a very reasonable VAT system on payments made from the bank account, which allows you considerable flexibility. You can input 'S' for standard rate, and the system will ask for the gross payment amount to be input. It will then work out the VAT component and the net value of the invoice. The VAT element will be posted to the VAT account. If the payment is zero rated or exempt, you can flag it as such. (I wasn't entirely sure why this VAT facility wasn't also part of the cash payments option.)

The next step is to credit the full value of the net invoice to whatever nominal ledger account or accounts you choose. The system automatically reduces the remaining balance of the payment by the amounts you allocate, so you can keep a track of the unallocated balance. This too, is a fairly sophisticated feature to find on a cassette based package.

Finally there is the reporting side of the system. This should be adequate for most users. Option 2 on the main menu ('Displays') contains all the summary reports (remember that if you have a printer attached, you are getting hard copy records of all postings along the way). Displays has three options, each of which have their own sub-menus (1 Nominal Ledger, 2 Statements, 3 VAT). Option 1, Nominal Ledger gives you four separate options (1 A Nominal A/C, 2 All Nominal A/Cs, 3 Trial Balance, 4 Final Accounts). Using this you can view either any or all the nominal account balances and descriptions in the system.

The sytem works out your profit or loss by adding together all your takings and subtracting from this all your payments. It also shows you your profit as a percentage of your sales – a useful management figure.

Option 2, Statements, gives you the choice betweenn looking at all your bank account transactions and all your cash account transactions. The system can only store a maximum of 200 of both types, so you have to use a simple routine provided to clear away the transaction details from time to time. Nevertheless, this is a useful option.

The VAT displays show you a summary of all your inputs and outputs for the quarter split by VAT code. It also shows you your total sales and allows you to make various adjustments (ie. for goods bought for your own purposes rather than the business). And it shows you your VAT account for the quarter (ie the amount owed by you or due to you from Customs and Excise).

Under review	**Bookkeeping for the Cash Trader**
Description:	**Cassette-based accounting for the 64**
Supplier:	**Quick-Count Ltd** **15 Neeld Crescent** **London NW4** **01-202 5486**
Summary:	**Very good for the cash trader, even on cassette.**
Price:	**£78**

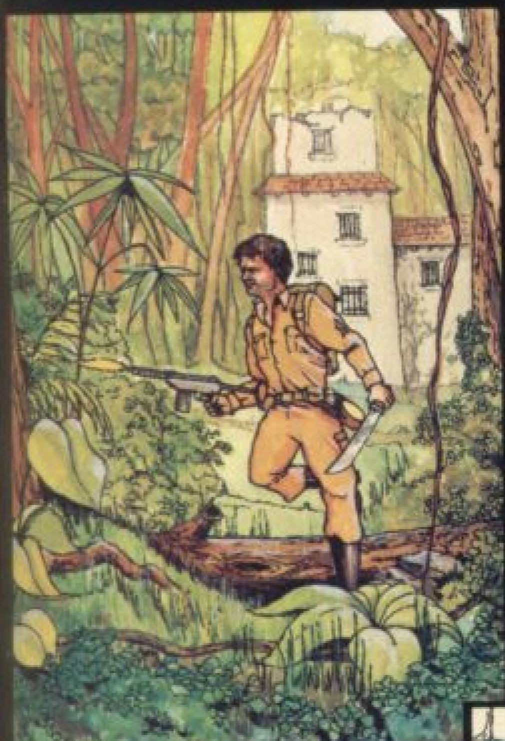
In conclusion

This is one of the nicest little business systems I have seen for the 'corner store' type company. It won't help you with your stocks, but it will give you an accurate picture of your incomings and outgoings, plus keeping good account of your VAT.

If you don't mind the hassles of using a cassette-based system, you could do far worse.

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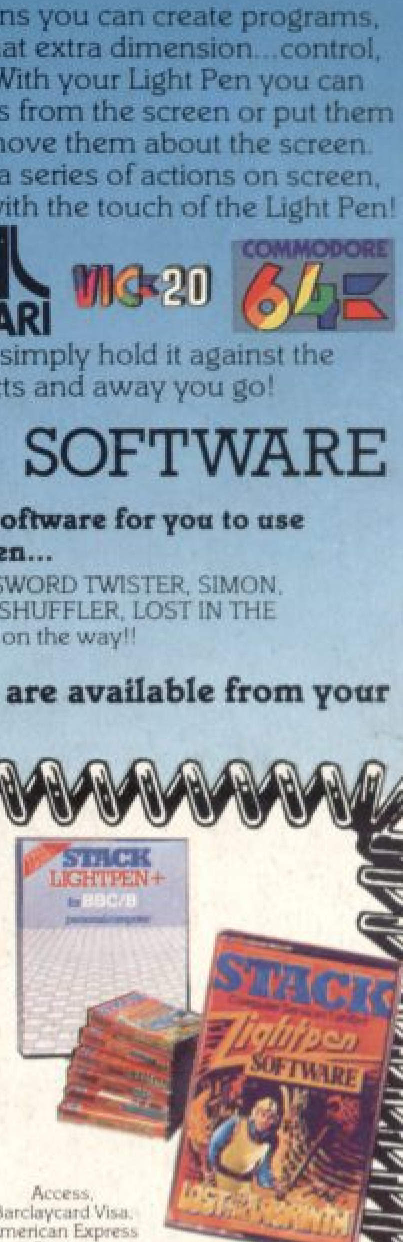
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